



DRAFT - October 2018

Calderdale Air Quality Action Plan 2018

In fulfilment of the council's duty under Section 84(2) of the Environment Act 1995 in respect of local air quality management

This version includes changes made in response to comments received on the draft.

Local Authority Officer	Tommy Moorhouse
Department	Public Services
Address	c/o Town Hall, Crossley Street, Halifax. HX1 1UJ
Telephone	01422 288001
E-mail	environmental.health@calderdale.gov.uk
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Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Calderdale between 2017 and 2030.

This action plan replaces the previous action plan which ran from 2009 [AQAP09]. Projects delivered through the past action plan include:

- Provision of bus lay-by at Salterhebble to improve traffic flows up this heavily trafficked incline through an AQMA;
- Adoption of West Yorkshire Low Emissions Strategy (December 2016);
- Junction improvements at Tuel Lane Sowerby Bridge to reduce congestion;
- Borough-wide improvements to cycling and walking networks, including resurfacing cycle paths along the Calder Valley;
- Campaigns to promote car share scheme and encourage use of public transport

Further consideration of the previous action plan will be presented.

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³. Calderdale Council is committed to reducing the exposure of people in Calderdale to poor air quality in order to improve health.

We have developed actions that can be considered under the following broad topics:

- Alternatives to private vehicle use
- Environmental permits
- Freight and delivery management
- Policy guidance and development control
- Promoting low emission plants;
- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Transport planning and infrastructure
- Traffic management
- Vehicle fleet efficiency

Our priorities are to improve the uptake of ultra low emissions vehicles and active travel, including the promotion of public transport, walking and cycling, and lobby for

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

the cleaning up of the public transport fleet. This will involve building public engagement into policy decisions that impact upon travel and showing leadership with bold decisions about planning, infrastructure and the transport network. It is worth setting out the objectives set by WYLES, and these are in Appendix D.

In this AQAP we outline how we plan to effectively tackle air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on policies and issues beyond Calderdale Council's direct influence.

Responsibilities and Commitment

This AQAP was prepared by the Environmental Protection Team of Calderdale Council with the support and agreement of the following officers and departments:

- Public Health
- Highways and Transport
- Planning Services

This AQAP has been approved by:

Department	Representative (signature)
Portfolio Holder - Environment	
Public Health	
Transport	
Sustainability	
Environmental Protection	

This AQAP will be subject to an annual review, appraisal of progress and reporting to the relevant Council Committee (to be confirmed). Progress each year will be reported in the Annual Status Reports (ASRs) produced by Calderdale Council, as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP please send them to Tommy Moorhouse at: Environmental Protection c/o Town Hall, Crossley Street, Halifax1 1UJ
Telephone 01422 288001, Email environmental.health@calderdale.gov.uk

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1 Introduction

Part IV of The Environment Act 1995 sets out the duties of Calderdale Council with respect to local air quality management.

The Air Quality (England) Regulations 2000 (amended 2002) set out objectives for 7 pollutants, including two objectives for nitrogen dioxide (NO₂)

- A level of no more than 200 micrograms per cubic metre, when expressed as an hourly mean, not to be exceeded more than 18 times a year
- A level of no more than 40 micrograms per cubic metre, when expressed as an annual mean

The regulations apply to the air outside of buildings or other natural or man-made structures above or below ground, and where members of the public are regularly present. The objectives were to be reached by 31st December 2005.

Sections 82 and 83 of the Act required the council to assess whether the objectives were met or were likely to be met by December 2005. Where they were not being met etc such areas were to be designated as Air Quality Management Areas (AQMAs). By December 2016 Calderdale had declared 7 AQMAs, each due to an exceedence of the annual mean objective for nitrogen dioxide.

Section 84 required Calderdale to assess the current and likely future air quality in those AQMAs and the reasons why the air quality objectives were not being met. Further assessments were published between 2007 and 2011 and can be viewed <http://www.calderdale.gov.uk/v2/businesses/pollution/air-quality/air-quality-management-areas-aqma>

Section 84 then required Calderdale to prepare an Air Quality Action Plan (AQAP) “*in pursuit of the achievement of air quality standards and objectives in the designated area, of any powers exercisable by the authority*”. In doing so it must have regard to guidance issued by the Secretary of State. The current statutory guidance is

- ‘Local Air Quality Management Technical Guidance (TG16)’ [Defra April 2016]
- ‘Local Air Quality Management Policy Guidance (PG16)’ [Defra April 2016]

and it recommends a structure and content of an AQAP. The current AQAP was written in 2009. The guidance suggests AQAPs are reviewed at least 5-yearly. It is therefore appropriate for Calderdale to review and revise its current air action plan.

The Calderdale 2017 AQAP outlines the council’s proposals to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents.

Progress on measures set out within this Plan will be reported on annually within Calderdale’s air quality Annual Status Report (ASR).

2 Summary of Current Air Quality in Calderdale

Calderdale has been monitoring local air quality for many years and in respect of nitrogen dioxide (NO₂) since the 1990's. Monitoring results are published in a series of reports and more recent reports are available on the Council's website <http://www.calderdale.gov.uk/v2/businesses/pollution/air-quality/air-quality-reports>. Currently the council monitors concentrations of nitrogen dioxide and fine particles PM₁₀ and PM_{2.5}.

The reporting format changed in June 2016 in accordance with statutory guidance. The Annual Status Report (ASR) now summarises the council's activity in local air quality management in the previous year. The most recent ASR can be viewed via the above link.

At the time of drafting this AQAP historic and current monitoring has lead the council to designating seven AQMAs. Each of these AQMAs has been declared due to an exceedence of the annual mean objective for nitrogen dioxide. They are at

- A629 Salterhebble, Halifax (Calderdale No. 1)
- A58 Sowerby Bridge (Calderdale No. 2)
- Hebden Bridge (Calderdale No. 3)
- Luddendenfoot (Calderdale No. 4)
- Stump Cross, Halifax (Calderdale No. 5)
- Brighouse (Calderdale No. 6)
- Hipperholme (Calderdale No. 7)

Preliminary investigation suggests that the annual mean objective may be exceeded in 8th area around the A58 at New Bank and Godley Lane, Halifax, and the Council is gathering further evidence to decide whether an AQMA (Calderdale No. 8) should be declared.

Maps of the individual areas are featured in Appendix A of this plan (as well as in the ASR and reports on the individual AQMAs).

Based on real-time and passive monitoring the range of measured levels in each of the areas is summarised in Table 1 below.

AQMA	Monitor reference	Measured level ($\mu\text{g}/\text{m}^3$) in 2016
A629 Salterhebble, Halifax	AQS2	46 continuous monitor
A58 Sowerby Bridge	AQS4	41 continuous monitor
A646 Hebden Bridge	AQS3	42 continuous monitor
A646 Luddendenfoot	LF1	46 diffusion tube
A58 Stump Cross, Halifax	SC5	43 diffusion tube
Brighouse Town Centre	HXR1	53 diffusion tube
A58 Hipperholme, Halifax	HH-LT	58 diffusion tube (relocated along Linden terrace 2016)

Table 1: Summary of level of NO₂ for Calderdale's AQMAs, 2016

3 Calderdale Council's Air Quality Priorities

3.1 Public Health Context

Poor air quality is known to be a factor in the development of respiratory and cardiovascular disease, and represents a real health cost to society. Understanding of the health effects of air pollution is developing rapidly (see, for example [LCPH]).

The most recent figures from Public Health England (2013-2015) show that the directly standardised death rate in under 75s from respiratory conditions (Public Health Outcomes Framework indicator (PHOF) indicator 4.07) was 43.7 per 100,000 in Calderdale, compared to 33.1 per 100,000 in England, significantly higher in Calderdale compared with the national picture. This figure recognises smoking and all forms of air pollution as contributory factors.

3.2 Planning and Policy Context

The Local Plan is a key component of local planning policy and as such is an appropriate tool for putting in place elements of the Council's Action Plan. Integration of air quality considerations into the planning process, in line with NPPF paragraph 124 allows a strategic approach to reducing emissions and promoting alternatives to private vehicle use. Calderdale Council formally adopted the West Yorkshire Low Emissions Strategy (WYLES) in December 2016 and is working towards implementing it through planning policy.

The Council has also published its Transport Strategy [CMBC17], which includes a commitment to leadership and innovative thinking in travel policy. This strategy is central to addressing vehicle emissions and exposure to traffic pollution.

This Action Plan has been produced in close association with the Low Emissions Strategy, which sets out the Council's broader air quality strategic ambitions.

3.3 Source Apportionment

The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within Calderdale Council's area. Road traffic is the main source of emissions in all seven air quality management areas, and a simple review of traffic census data gives some insight into the vehicle types that are responsible.

Two AQMAs in particular include street canyons, quite narrow stretches of road lined with tall buildings. This is believed to lead to higher average concentrations of pollutants in these areas compared with open areas, due to restricted dispersion.

A source apportionment exercise was carried out by Calderdale Council in 2017 using traffic counts from 2016. This identified that within the AQMAs the percentage source contributions were similar across the Borough. The pie chart below shows the breakdown at Salterhebble.

The Emissions Factor Toolkit v 7.0 was used for the initial calculation of NO_x emissions in the first part of this section, with the updated EFT8.0.1a being used for the latter part.

Source apportionment Salterhebble

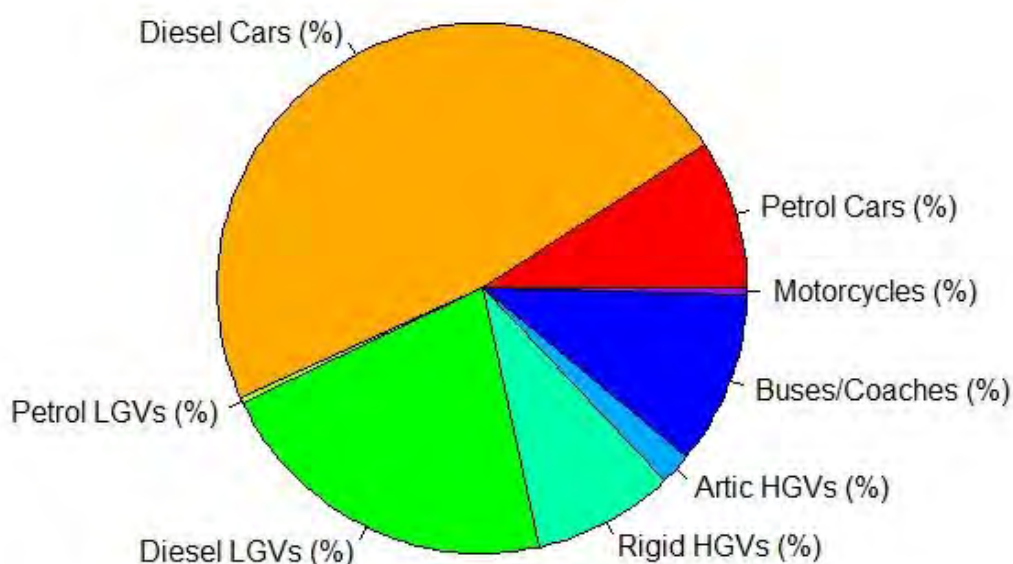


Figure 1: Pie chart - source apportionment by vehicle type

Diesel cars and diesel LGVs dominate the emissions (Figure 1), and this is typical of the picture across the AQMAs, and indeed across the UK (see Figure 3 of [DEFRA 17]). Similar charts can be drawn for each AQMA, but it is difficult to visually compare pie charts and the following bar charts may be more helpful.

Figure 2 shows the emissions from each vehicle type labelled by the closest diffusion tube to the stretch of road being considered.

In Figure 3 the horizontal bars show the percentage contributions of each vehicle type, with the entire bars representing 100% of the emissions. It is easier to get a picture of the relative importance of each source at each site, and again it is clear that diesel vehicles contribute most. The Regional and Local contributions are background contributions derived from Defra's maps and the calculations in TG16. Figures 4 to 7 show the emissions by vehicle type for four road links around Calderdale.

It is important to note that calculations of this type are necessarily approximate. They represent a combination of different estimates (vehicle speeds, fleet composition snapshots, emission factors etc) and should be considered with this in mind.

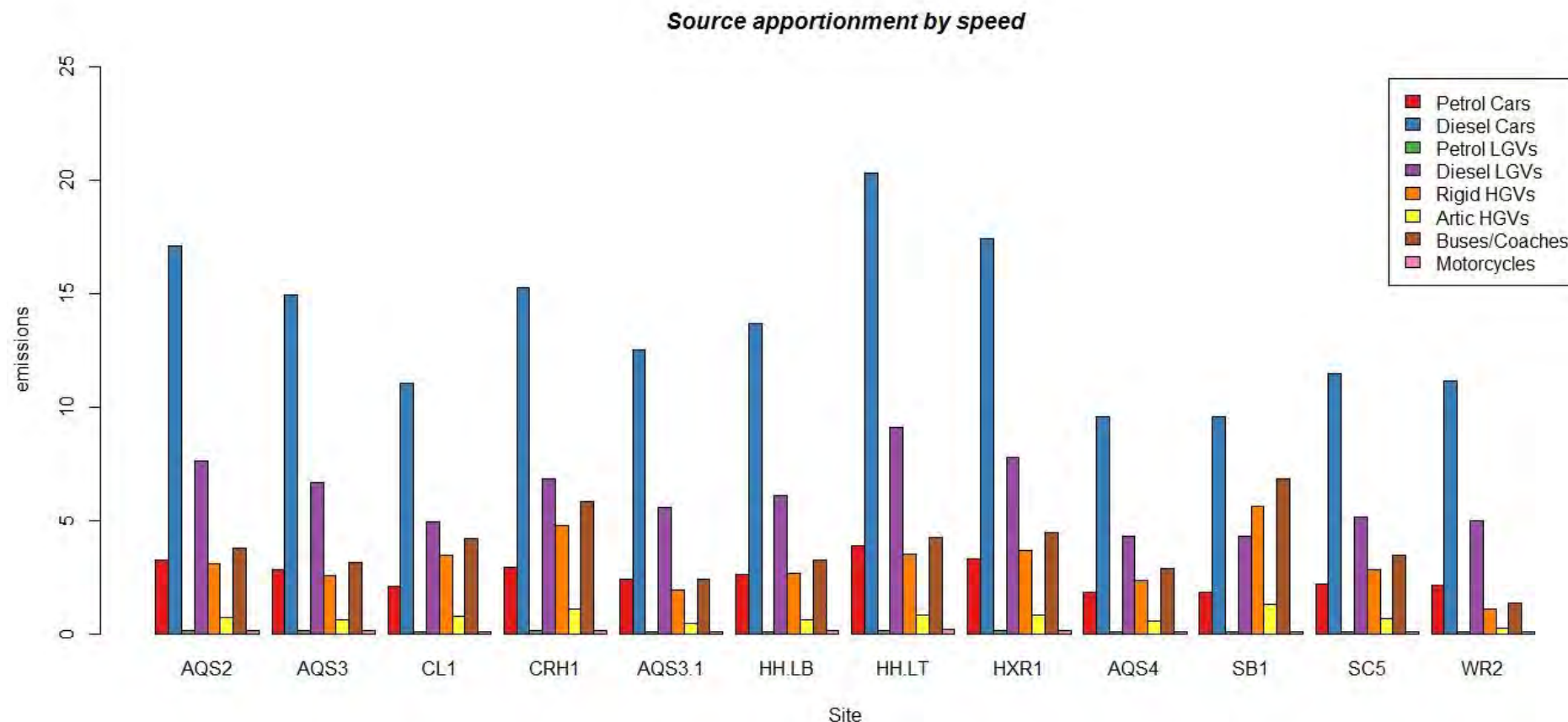


Figure 2: emissions by vehicle type

Figure 2 shows the emissions from each type of vehicle identified in the Emissions Factor Toolkit. The sites are labelled by the closest diffusion tube used in the 2016 survey. In every area surveyed the highest emissions of nitrogen dioxide are seen to be due to diesel vehicles, and diesel cars in particular. In Sowerby Bridge (SB1) the relative contributions of buses and rigid HGVs are greater than those of diesel LGVs. Petrol LGVs contribute very little to the total emissions at any of the sites. Hipperholme has the greatest contribution from diesel cars.

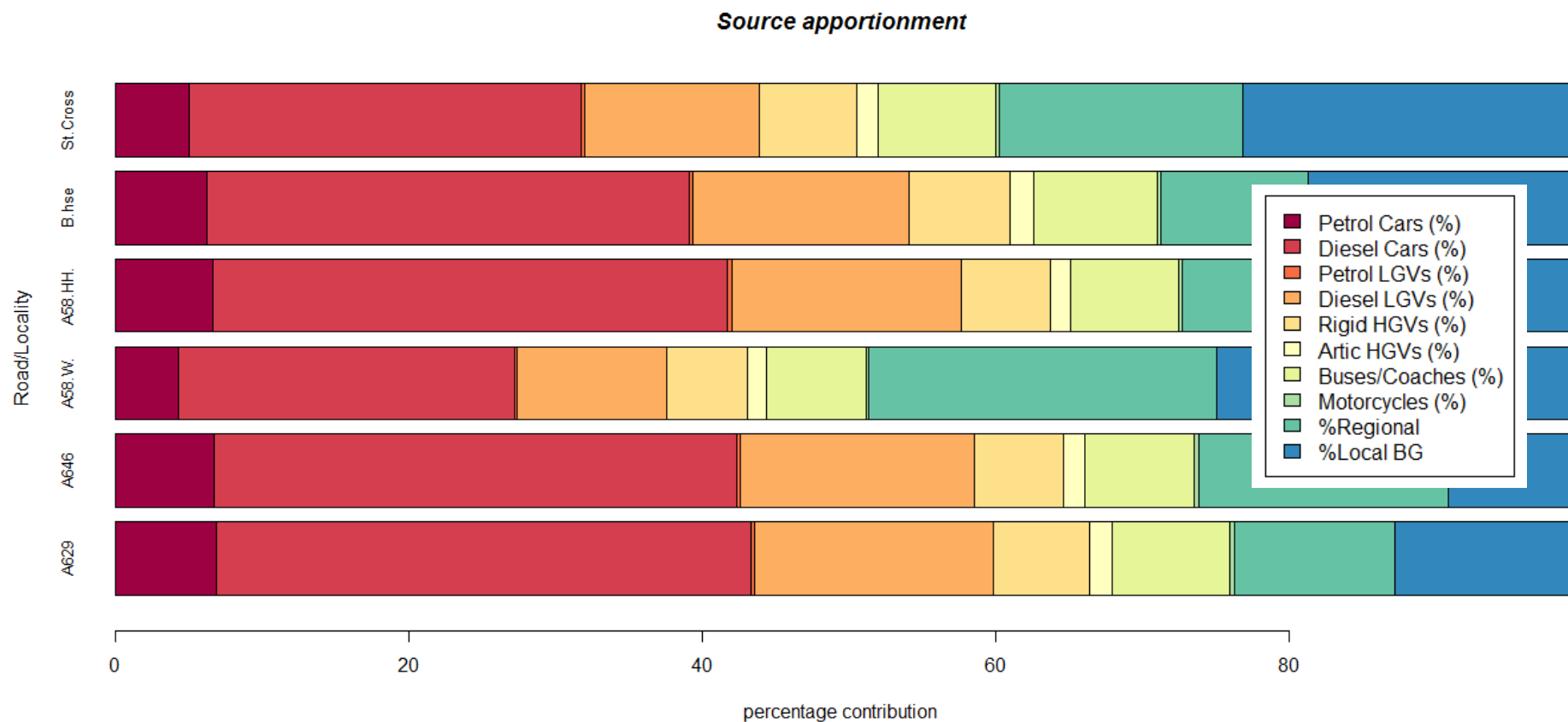


Figure 3: relative source apportionment at various sites (based on EFT 7)

In Figure 2 the listed sites are: A629 – Huddersfield Rd, Salterhebble; A646 – Market Street, Hebden Bridge; A58(W) – Wharf Street, Sowerby Bridge; A58(HH) Leeds Road, Hipperholme; B.hse – Halifax Road Brighouse and St.Cross – Stump Cross.

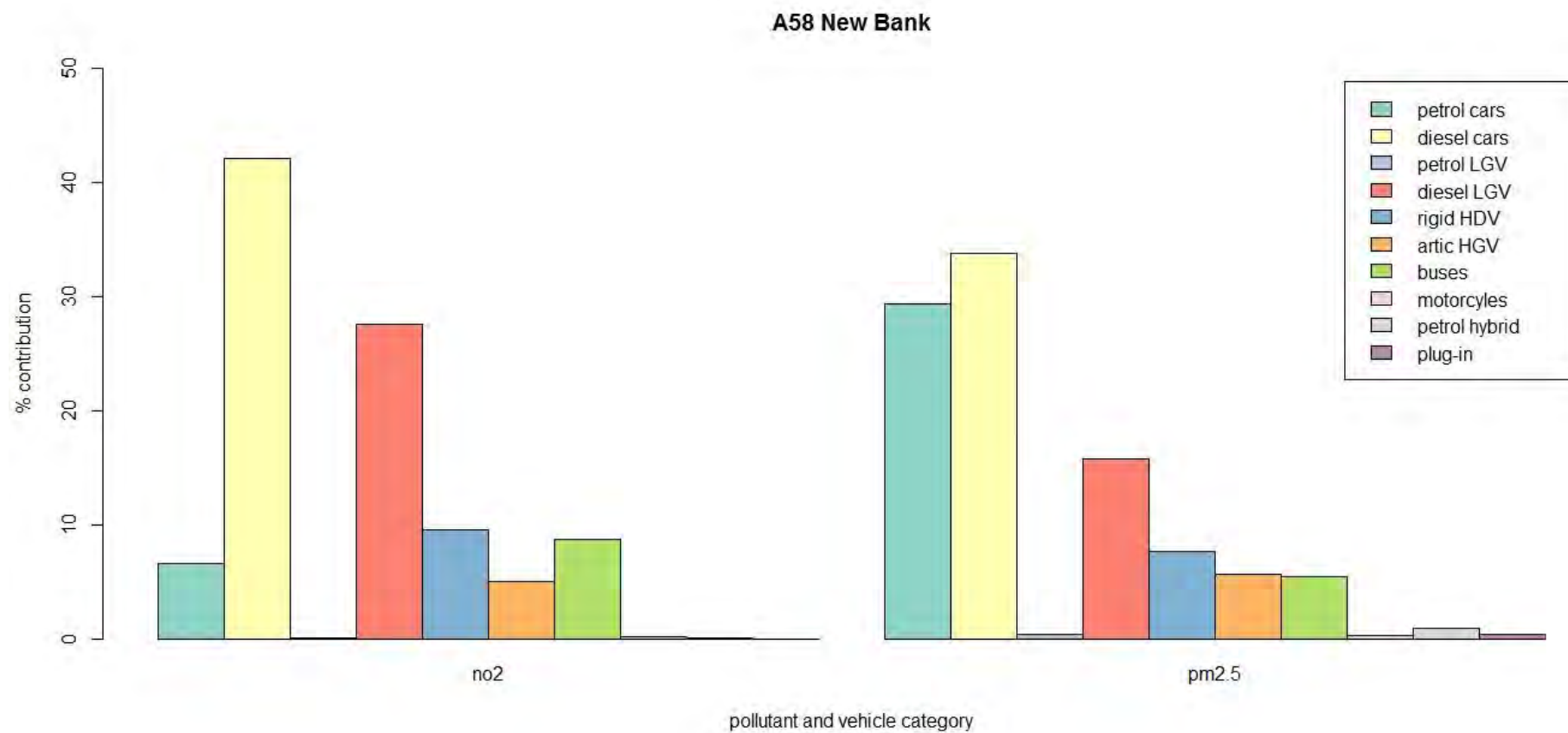


Figure 4: emissions by vehicle type, A58 New Bank, Halifax

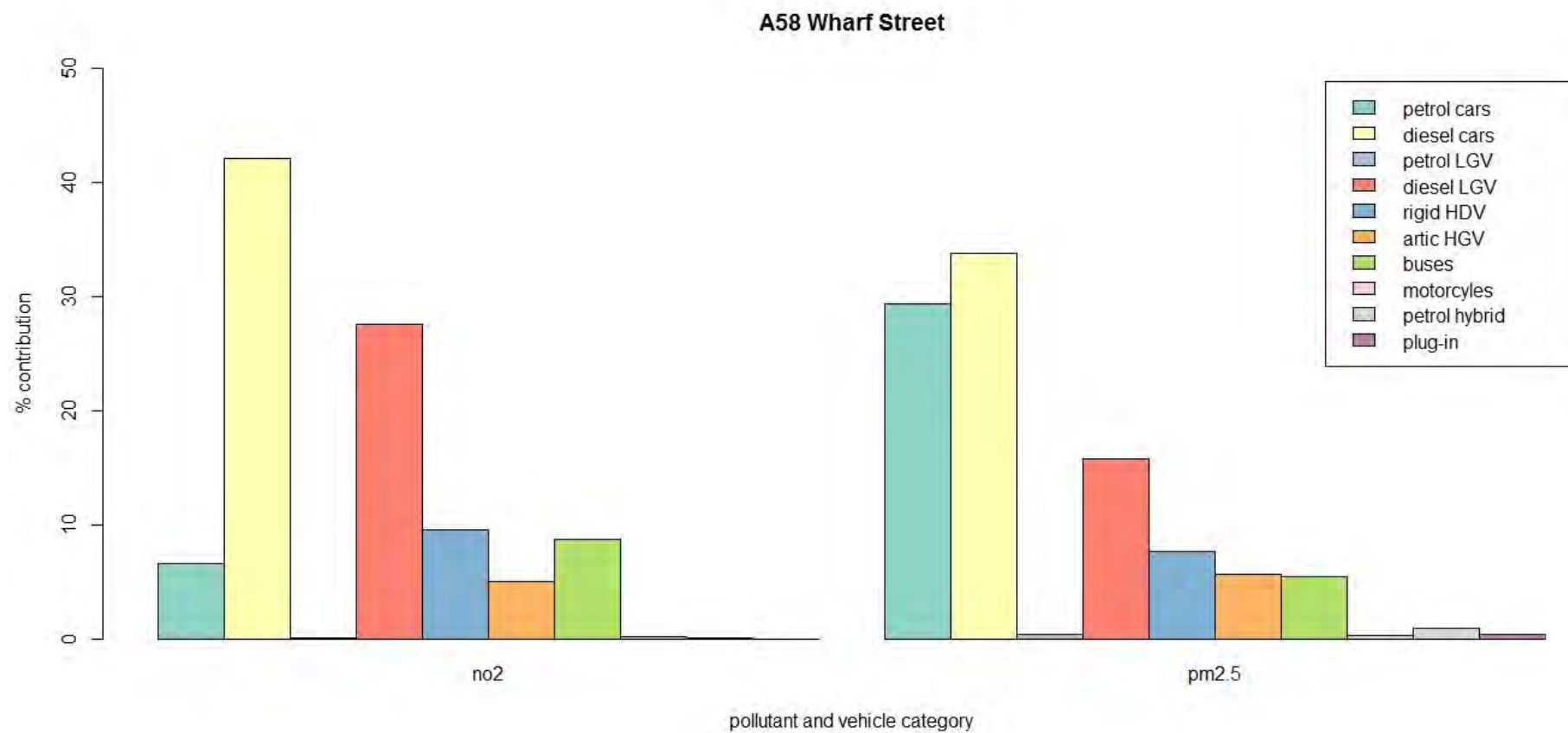


Figure 5: emissions by vehicle type, A58 Sowerby Bridge

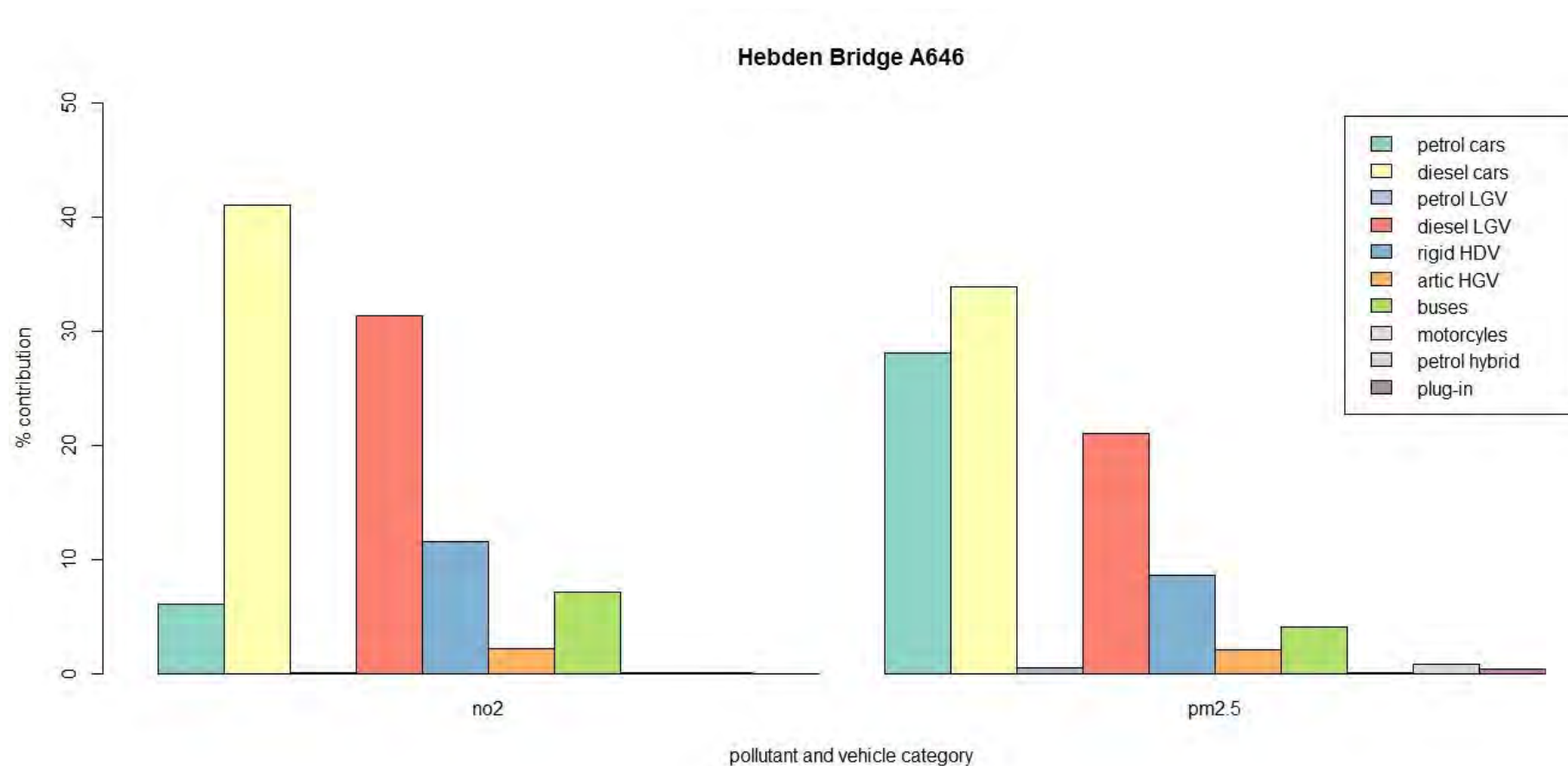


Figure 6: emissions by vehicle type, A646 Hebden Bridge

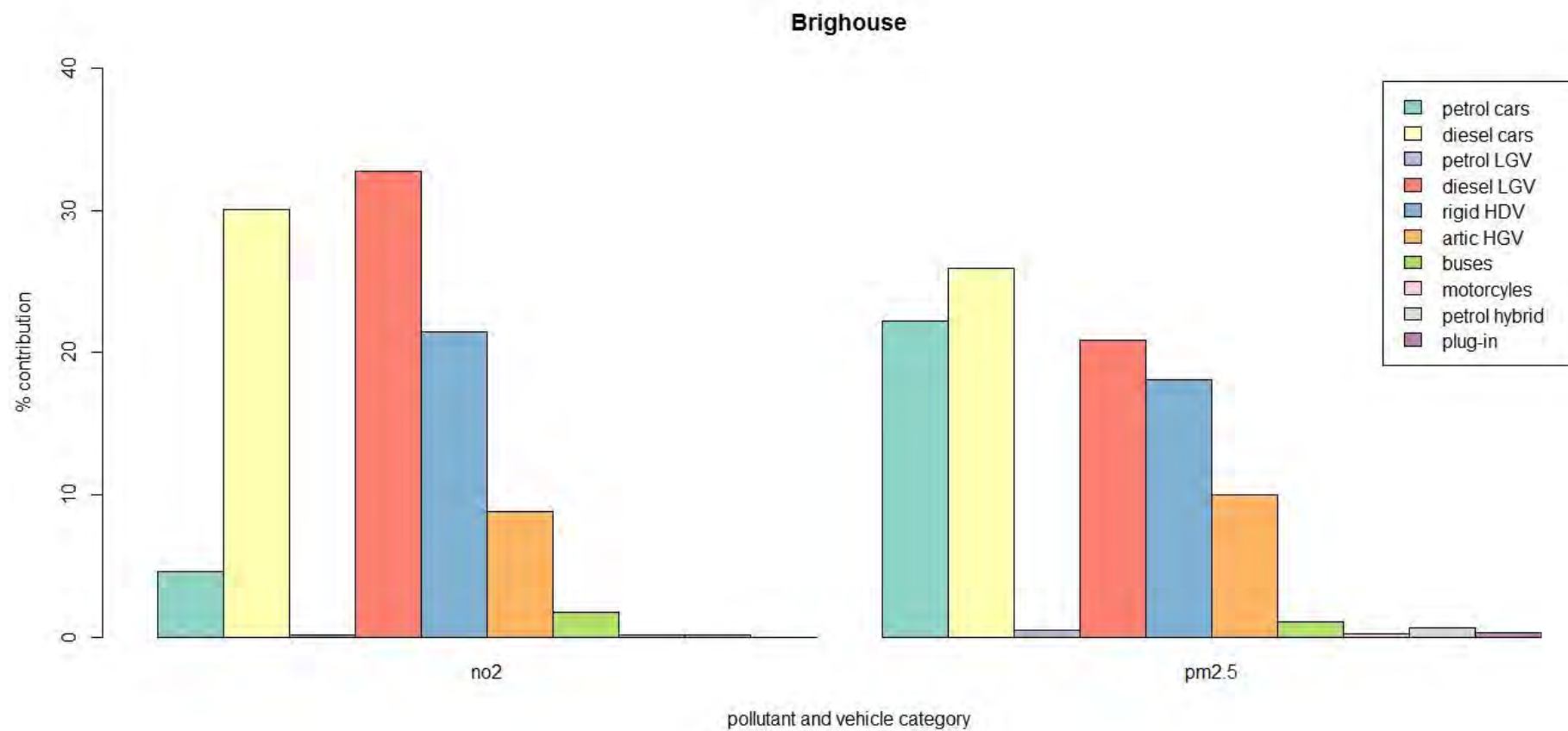


Figure 7: emissions by vehicle type, Brighouse

3.4 Required Reduction in Emissions

The required reduction has been calculated in line with Technical Guidance LAQM.TG16 Chapter 7, where the terms are defined.

Count point	Road	Tube	Regional background (%)	Local background (%)	All LDVs (%)	All HDVs (%)	Road increment NOx	Target road NOx	Reduction needed (NOx)	% eduction needed
7728	A629	AQS2	10.92172	12.70034	59.28142	17.09652	84	65	19	22.6
77715	A646	AQS3	17.01113	9.039386	58.93254	15.01695	70	65	5	7.1
17357	A643	CL1	13.81588	23.94094	54.32187	7.921314	62	53	9	14.5
47406	A629	CRH1	13.1651	18.35223	50.17525	18.30743	91	52	39	42.9
17360	A646	AQS3	25.27876	14.0603	47.83696	12.82398	60	53	7	11.7
6577	A58	HH-LB	15.5539	19.69924	44.28075	20.46611	68	54	14	20.6
17358	A644	HH-LT	12.11607	15.03979	59.17027	13.67387	105	54	51	48.6
28683	A641	HXR1	10.03038	18.56047	52.48015	18.92901	92	56	36	39.1
77654	A58	AQS4	23.64762	24.89214	39.23825	12.22199	49	44	5	10.2
7729	A6026	SB1	18.9934	21.78	47.2001	12.0265	71	44	27	38.0
76051	A58	SC5	16.55844	23.08256	41.27986	19.07913	59	51	8	13.6
56867	A644	WR2	16.94799	31.36098	27.66959	24.02144	48	45	3	6.3

Table 2: calculation of required reduction

Tube	T-NO2	TB-NO2	Road Nox	TB-Nox	RB-Nox	LB-Nox	RB-NO2	LB-NO2	L-NO2
AQS2	47	11.10237	66.83	22.72636	10.50759	12.21877	5.133208	5.96916	35.89763
AQS3	42	10.94122	67.11	15.00012	9.79516	5.204959	7.144674	3.796542	31.05878
CL1	43	16.23543	53.19	29.14229	10.66367	18.47862	5.940827	10.29461	26.76457
CRH1	54	17.01936	61.42	24.67213	10.30579	14.36634	7.109154	9.910202	36.98064
AQS3	42	16.52241	65.08	15.24333	9.79516	5.448168	10.61708	5.905327	25.47759
HH-LB	45	15.86391	69.14	23.35824	10.30579	13.05244	6.999253	8.864659	29.13609
HH-LT	58	15.7504	51.81	23.90059	10.66367	13.23692	7.027318	8.72308	42.2496
HXR1	53	15.15315	58	30.39599	10.66367	19.73232	5.316101	9.837047	37.84685
AQS4	42	20.3867	56.47	21.56817	10.50759	11.06058	9.932002	10.4547	21.6133
SB1	50	20.3867	46.61	22.55679	10.50759	12.0492	9.496702	10.89	29.6133
SC5	43	17.04563	74.37	24.67213	10.30579	14.36634	7.120129	9.925503	25.95437
WR2	41	19.80668	45.46	30.39599	10.66367	19.73232	6.948675	12.858	21.19332

Table 3: calculation for TG16 parameters

The figures for the percentage reduction needed show quite a large variation between sites, but some variation is to be expected due to the nature of the information and estimates used. For example, AQS3 in Hebden Bridge lies between two count points, and the actual composition of the traffic passing AQS3 is related to the respective counts in a way that cannot be simply deduced. The two count points suggest that the required reduction is between 7% and 12%, indicating the range of uncertainty to be expected.

The diffusion tubes at Hipperholme (HH-LB and HH-LT) show different annual means and therefore, since the traffic composition is similar, different values for the reduction required. HH-LT is very close to the major junction while HH-LB is set further back from the carriageway. It is clear that allowing a smoother flow around the junction would have a beneficial impact on concentrations of nitrogen dioxide, but it isn't possible using the models available to realistically quantify the reduction that would be achieved.

Obtaining good estimates of fleet composition is a real challenge, and the estimates from DfT counts have a number of drawbacks, including the identification of vehicle types and whether the monitoring period gives a representative picture of the traffic through the study area.

3.4.1 A note on source apportionment and speed

It is of interest to examine how the relative contributions of different vehicle types vary with speed. This is of relevance for Calderdale's AQMAs as these are centred on stretches of road where speeds are generally low, including junctions. The figure below shows the relative contributions of vehicle types at speeds ranging from 10km/h (the bottom bar) to 70km/h (top bar) in 10km/h steps. This was calculated using the Emissions Factor Toolkit v7.0 using a standard fleet breakdown with 5% HGV. At low speeds the relative contribution from buses and HGVs is greater than at higher speeds.

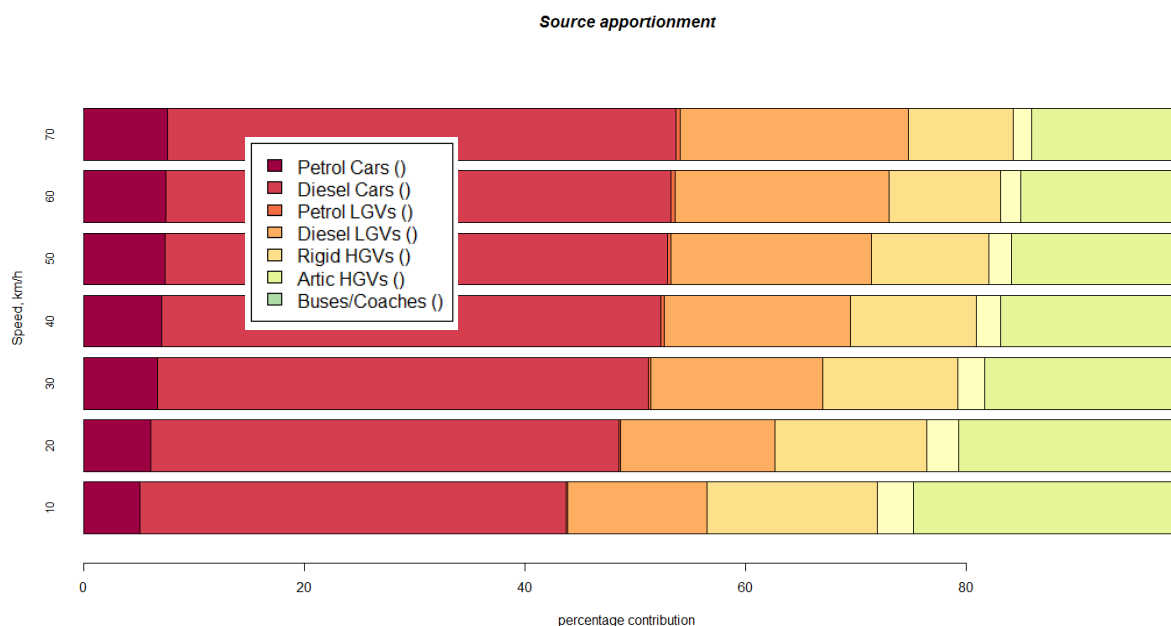


Figure 8: the influence of speed on relative emissions

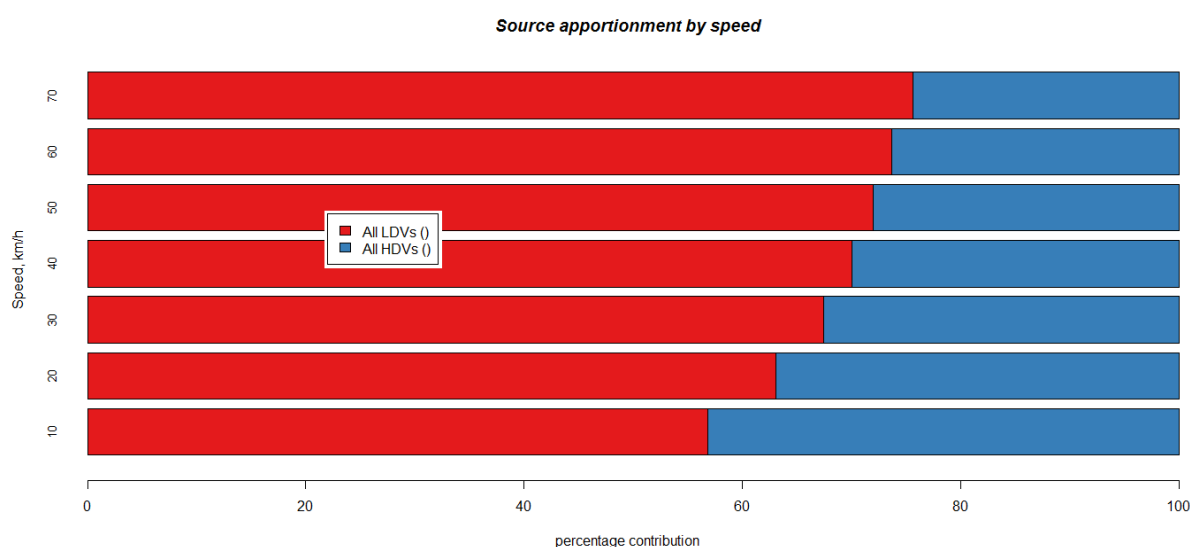


Figure 9: LDV vs HDV emissions by speed

Traffic management that allows vehicles, particularly HDVs, to move at a better pace will generally reduce the emissions. Allowing buses to proceed through junctions, for example, may have an impact on the overall emissions profile in that location.

3.5 Key Priorities

The Council envisages that implementation of the Transport Strategy, Low Emissions Strategy and Local Plan will play a key role in tackling air quality issues. These elements therefore underpin many of the key priorities identified below.

- Priority 1 - promoting alternatives to private vehicle use, recognising the contribution of diesel vehicles and bidding for ULEV funding whenever possible
- Priority 2 – improving the transport network infrastructure, as set out in the Council's Transport Strategy and Local Plan
- Priority 3 –developing awareness of impacts and remedies, and integrating the priorities of other strategies and frameworks, such as public health (active travel), sustainability (carbon reduction strategy) and local planning (sustainable development)
- Priority 4 - encouraging public engagement and interest through improved communication and community involvement.

4 Development and Implementation of Calderdale Council AQAP

4.1 Consultation and Stakeholder Engagement

In developing/updating this AQAP, we have worked with other local authorities, agencies, businesses and the local community to identify measures to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in paragraph 6.1 of [PG16] In addition, we have undertaken the following stakeholder engagement:

- Website improvement
- Publication of air quality monitoring data on the Council's Dataworks site
- Survey of residents' views on air quality and the Council's work in this area

The response to our consultation stakeholder engagement is given in Appendix B.

Yes/No	Consultee
Yes	the Secretary of State
Yes	the Environment Agency
Yes	the highways authority (CMBC and Highways England)
Yes	all neighbouring local authorities
Yes	other public authorities as appropriate, such as Public Health officials
Yes	bodies representing local business interests and other organisations as appropriate

Table 4: Consultation Undertaken

4.2 Steering Group

Although no formal Steering Group has been formed, the Council has set up an air quality strategy group consisting of Council officers and an elected Councillor with the Environmental portfolio. The Council officers include representatives of Public Health, Planning, Highways and Environmental Protection. The group meets approximately monthly and sets actions aimed at furthering the Council's priorities in air quality. Progress is reviewed and expertise shared, and ideas for relevant projects are reviewed and consolidated.

The group has prioritised the development of the Council's Air Quality Strategy and Action Plan, and these projects have developed together. Air quality monitoring and the response to results that may indicate the need for further action have also been considered.

The group will continue to explore ways to make sure that the Council's policies and strategies feature improving air quality as a central consideration.

5 AQAP Measures

Table 5 shows the Calderdale Council AQAP measures. It contains:

- a list of the actions that form part of the plan
- the responsible individual and departments/organisations who will deliver this action
- estimated cost of implementing each action (overall cost and cost to the local authority)
- expected benefit in terms of pollutant emission and/or concentration reduction
- the timescale for implementation
- how progress will be monitored

NB: Please see future Annual Status Reports for annual updates on implementation of these measures

Table 5: Air Quality Action Plan Measures

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
AQAP1 (1)	Achieve better understanding of local air quality, including monitoring and source apportionment, queue length and congestion studies	Transport Planning and Infrastructure	Other	Calderdale MBC, neighbouring authorities, tools from Defra, WYCA	2009-2014	2009-2020	% data collection	Neutral	funding in place until 2019, including contribution from WYCA	ongoing	funding ends 2019
AQAP1 (2)	Traffic flow and network improvements,	Traffic Management	UTC, Congestion management, traffic reduction	CMBC, Highways England, neighbouring Las, WYCA	current	current	data collection	Neutral	Implementation on-going	ongoing	Funding
AQAP1 (3)	UTC improvements	Traffic Management	UTC, Congestion management, traffic reduction	Calderdale MBC, neighbouring authorities	current	current	Decreased congestion on routes with air quality exceedances	Some reduction due to improved flows of traffic	Implementation on-going	To be included in major projects and Corridor Improvement Plans	Modified since original action plan
AQAP1 (4)	Handling emissions data (Emissions Factor Toolkit)	Transport Planning and Infrastructure	Other	Calderdale MBC, tools from Defra	NA	current	effectiveness of predictions	Neutral			
AQAP2 (1)	Local Air Quality Partnership	Public Information	Via other mechanisms	Calderdale MBC, neighbouring authorities	NA	NA	number of partners signed up	uncertain	Not currently active, but being considered as part of focus area		Resources to engage with potential partners
AQAP2 (2)	Air Quality web pages - improve, e.g. include live data	Public Information	Via the Internet	Calderdale MBC	ongoing	ongoing	web traffic, customer satisfaction	indirect, may influence behaviour	web pages updated, work progressing on live data	late 2018	technical matters, not insurmountable

Calderdale MBC

AQAP2 (3)	Investigate freight partnership	Freight and Delivery Management	Freight Partnerships for city centre deliveries	Kirklees MBC, Calderdale MBC, Highways England	current	2019 onwards	number of partners signed up	significant improvements in longer term	Not currently active, but being considered as part of focus area		Resources to engage with potential partners
AQAP3 (1)	Promote high occupancy travel	Transport Planning and Infrastructure	Strategic highway improvements, re-prioritising	CMBC, neighbouring Authorities	ongoing	ongoing	To be determined	modest reduction in road emissions		ongoing	
AQAP3 (2)	Cycling infrastructure improvements and facilities	Promoting Travel Alternatives	Promotion of cycling	CMBC	current	2018 onwards	kilometres of new cycle paths	significant improvements in longer term	Various schemes underway, some stalled		Funding and staffing resources
AQAP3 (3)	Active Calderdale campaign	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	CMBC	current	ongoing	most active Borough in the North by 2024	low impact on emissions but reduced exposure			
AQAP3 (4)	Metro travelcard pool scheme	Alternatives to private vehicle use	Other	CMBC, Metro	current	ongoing	Number of staff car journeys replaced	Low initial impact	take-up increasing	ongoing	further cards purchased 2018
AQAP3 (5)	20mph areas	Traffic Management	Reduction of speed limits, 20mph zones	CMBC		2017	Number of 20mph zones	Possible small reduction in road traffic emissions	zones completed	completed 2017	NA
AQAP3 (6)	Car sharing promotion	Alternatives to private vehicle use	Car & lift sharing schemes	CMBC	2009-2014	2009-2020	number of car sharing partners	small reduction, behavioural change	car sharing scheme up and running - featured in Clean Air day 2018	ongoing	interest appears to be growing
AQAP4 (1)	ULEV procurement	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	CMBC	2018-2023	2023 onwards	% low emission/ ULEV vehicles in fleet	Reduction in emissions around schools	Some ULEVs procured	after 2023	
AQAP4 (2)	EV recharging provision	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission	CMBC supported by OLEV etc.	current	current	Number of EV charging points	Reduced vehicle emissions	Implementation on-going	Date	Funding

Calderdale MBC

			Vehicles, EV recharging, Gas fuel recharging								
AQAP4 (3)	Retrofit school bus fleet	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Calderdale MBC, neighbouring authorities	2015	2017	proportion of fleet retrofitted	Reduced vehicle emissions	Implementation on-going	Date	
AQAP5 (1)	Travel plans	Promoting Travel Alternatives	Workplace Travel Planning	Calderdale MBC, neighbouring authorities	NA		number of workplaces with travel plans				
AQAP5 (2)	School travel plans	Promoting Travel Alternatives	School Travel Plans	Calderdale MBC, neighbouring authorities	NA		schools with travel plans	mainly behavioural influence	completed		Many schools not with Local Authority
AQAP5 (3)	Local Plan Air Quality Policies	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	CMBC	current	2017 onwards	Policies applied to all developments	significant improvements in longer term	WYLES adopted and used	ongoing	WYLES includes AQ guidance for developers
AQAP5 (4)	Promote uptake of electric vehicles eg. taxis	Promoting Low Emission Transport	Taxi emission incentives	CMBC	begun 2017	2017 onwards	number of ULEV taxis	moderate, especially in town centres			
AQAP6 (1)	Community renewable energy scheme	Promoting Low Emission Plant	Public Procurement of stationary combustion sources	CMBC	current	2019 onwards	number of schemes approved	significant improvements in longer term		ongoing	
AQAP6 (2)	Promote locally grown food, goods and services	Freight and Delivery Management	Other	CMBC, local partners including 'Incredible Edible'	current	2018 onwards	Policies applied to all developments	significant improvements in longer term	Second round of consultation starts mid 2018		
AQAP6 (3)	Improved energy efficiency	Other	Other				Number of developments incorporating energy efficiency measures				

Calderdale MBC

AQAP6 (4)	Low Emissions Strategy	Policy Guidance and Development Control	Low Emissions Strategy	CMBC	up to 2017	2018	Adoption of strategy	Long term impact	Under consultation (June 2018)		
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Transport and infrastructure projects feature prominently in the table. The improvement of key routes into Calderdale has begun with a major project on the A629 between Halifax and Huddersfield. This road passes through Calderdale AQMA No. 1 at Salterhebble, and work is in progress to explore some innovative ideas about incorporating live air quality monitoring data into the traffic management system here.

5.1 Progress with previous Action Plan

The 2009 Action Plan was written to cover three AQMAs: Salterhebble, Hebden Bridge and Sowerby Bridge. It summarised the air quality data then available and included actions specific to the AQMAs as well as more strategic action. The links between Calderdale's roles and those of other agencies and bodies were described.

Some of the actions formed part of the Local Transport Plan (LTP), or involved collaboration with other bodies. Table 6 shows measures identified as ongoing in [AQAP09].

Lead partner	Action	Progress	notes
CMBC	Traffic monitoring and modelling	Ongoing, see below	See Section 5.1.1
CMBC	Air quality monitoring and modelling	Three monitoring stations, around 60 diffusion tubes	Ongoing
CMBC/ partners	Congestion target delivery plan		See Section 5.2
WY Metro/ WYCA	West Yorkshire Bus Partnership		Ongoing
WY Metro/ WYCA	Rail Strategy	Halifax rail station refurbished, Elland rail station feasibility study completed	See Section 5.1.3
CMBC/ partners	Walking and cycling strategies	Strategies approved, improvements carried out to cycleways & footpaths	LTP superceded, cycling strategy developed (Section 5.3.3)
CMBC/ schools/ partners	Sustainable travel plans	Plans submitted as part of planning process	WYLES also covers travel plans
CMBC/ Partners	Car share	Scheme in place, promoted.	Uptake has been variable.
CMBC	Car parking strategy		New strategy for Halifax including promotion of EVs and cycle parking

Table 6: ongoing measures

Table 7 indicates progress with measures identified as general district-wide measures in [AQAP09].

Table 7: district-wide measures

Lead authority	Action	Description	progress
CMBC and partners	Local air quality partnership	Seek joint approach to addressing emissions and exposure	Not currently pursued
CMBC and partners	Information, education and travel awareness	Updates on air quality in AQMAs	'live' updates being investigated – otherwise reported as part of LAQM.
		General advice on causes/ effects of poor air quality	Some information on website, not extensive
		Advice for motorists on cutting pollution	Some information on website, not extensive
		Promotion of alternative fuels	EV promotion developing
		Voluntary vehicle emissions tests	Not pursued
		Initiatives such as 'bike week', 'walk to work week'	Initiatives tried and ongoing
		Active lifestyle promotion	Ongoing
		Personalised journey planning	Not pursued yet, but still a possibility
EU and UK law, CMBC	Cleaner fuel technology	Council to show leadership in fleet procurement and management	
		Partnership work on EV infrastructure	Some success, ongoing work
		Incentives such as discounted parking charges for EVs	EV provision included in Halifax Town Centre car parking strategy
		Setting emissions standards in contracts	
CMBC/ partners	Freight quality partnership		Under investigation
CMBC	Planning controls	Include air quality-related planning	Policies EP1 and EP2 were adopted.

		controls	Currently only EP1 survives, but Local Plan should include air quality. WYLES adopted.
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5.1.1 Traffic modelling, monitoring and managing

Traffic counts are undertaken across the Borough's road network. Modelling and innovative monitoring have been used in the A629 corridor improvement programme in order to optimise the road design and traffic controls.

Monitoring travel times along the A629 using Bluetooth (and possibly WiFi) connected to drivers' phones is helping to optimise traffic flows during disruption due to road improvements.

The Urban Traffic Management Control programme is a West Yorkshire wide programme to replace all the traffic signals on the Key Route Network with dynamic signalling utilising Blue Tooth detection for better traffic management. Benefits include improved journey times and reduced emissions. Calderdale now needs to further develop its signal strategy.

Work is also underway to explore innovative technology to map traffic flows and emissions along key routes, including routes through AQMAs. The aims include quantifying the impacts of interventions such as changes to traffic controls both on congestion and air quality.

5.1.2 Bus partnership

Improvements to ticketing and fares are being lead by Transport for the North and WYCA. Digital tickets and contactless payments are being developed along with mobile apps to simplify ticket purchases and deliver travel information.

The Council, through WYLES and WYCA, is also engaged in a bid for finances from the Clean Bus Technology Fund. This will support the introduction of cleaner buses on routes through Calderdale's AQMAs. FirstBus in Calderdale will retrofit 30 buses during 2019.

5.1.3 Rail strategy

Shifting commuter and leisure travel from the roads to rail could make a significant change to the volumes of traffic, and consequent air pollution, across the Borough.

Funding has been secured both for the Halifax Station Gateway and for a new Elland Rail Station. The former is a scheme intended to improve links between the existing rail station and the town centre, and is closely linked with major improvements to the transport system and infrastructure within the town.

Elland rail station offers the opportunity for residents to choose rail travel instead of driving into Halifax, Brighouse or Huddersfield, which would ease congestion on the A629 in particular.

Some of the line speed improvements for the Calder Valley Line are being delivered through the Northern Hub. Other outputs of the committed programme include direct links to Manchester Oxford Road and Manchester Airport, and faster and more frequent services between Leeds and Manchester. “The Northern Programme is a series of targeted upgrades to the railway in the north of England. It will allow hundreds more trains to run each day and provide space for millions more passenger [journey]s a year.”

The new franchisee for the Calder Valley Line intends to put new rolling stock on the line. The rolling stock is currently being built.

In 2016 the Todmorden Curve, a short stretch of railway line abandoned in the mid 20th century, was reopened. This introduced additional direct services between Manchester and Burnley, calling at Todmorden and improving service frequency to Lancashire and Greater Manchester.

Taken together these developments will help make rail travel a more attractive option for commuters and leisure travellers, but more investment is needed to fill critical network gaps including weekend and all night connectivity; better links from the Upper Valley to the Lower Valley employment zones; and supporting Travel to Learn.

5.1.4 Sustainable Travel Plans

Some progress has been made in this area, but there remains work to be done. The WYLES planning technical guidance requires developers of some schemes to put in place travel plans where the development could adversely impact upon air quality, and travel plans are being submitted with many applications. However, resources are required to support and enforce travel planning.

5.1.5 Car parking strategy

Although a politically sensitive subject, car parking needs to be properly managed to encourage the use of other forms of transport and to move private vehicles away from town centres.

The Halifax Town Centre parking strategy has been adopted as part of the wider Transport Strategy: an extract from the Council minute states:

The Halifax Car Parking Strategy [has] been developed as part of the ambition to maintain and grow the vibrancy and vitality of Calderdale as a whole. It [outlines] an approach to parking that reflect[s] the ambitions to minimise the impact on sensitive environments, support the local economy and respond with agility to technological change and customer expectations. The strategy support[s] the creation of a positive ‘sense of place’ where the enjoyment of spending time in Halifax – to look, to linger, to shop and to soak up the culture [is] at the heart of decision-making. This [is] an integral part of a wider

Transport Strategy. The Strategy [is] focused on Halifax in order to tie in with the current major infrastructure investment, but wider consideration [is] now being given to parking management in other parts of Calderdale through the Town Boards. Lessons learned would be used to inform on-going policy in the other District Centres. The goal to get drivers off of the highway network at easily accessible locations on the periphery of town would facilitate better traffic management, improve overall air quality and reduce dominance of the car in the core of the town.

5.1.6 Cleaner fuel technology

The Council is promoting and encouraging the uptake of electric vehicle technology. This technology has moved on since the 2009 Action Plan and the Council has successfully applied for funding to install and support the installation of EV recharge facilities.

EV recharging features in the Transport and Parking Strategies, and the Council is working with the licensed trade to promote the uptake of cleaner vehicles as they come up for renewal.

5.1.7 Freight Quality Partnership

Although no partnership has yet been formed the Council is looking into taking on a commercial partner to trial in-cab technology for reducing the impact of heavy vehicles on air quality, for example by routing HGVs away from areas where air quality is a real-time concern.

A signing strategy is also being investigated with the aim of reducing HDV traffic through areas of poor air quality. This goes hand in hand with the collaborative traffic management scheme operated in partnership with the Highways Agency. This scheme would alert the partners to incidents, adverse conditions and road closures (mainly on the M62) to allow diverted traffic to be routed and managed.

5.1.8 Planning Controls and WYLES

The main development in this area is the formal adoption in December 2017 of the West Yorkshire Low Emissions Strategy and associated technical guidance. Proposed developments must take into account air quality from the outset. Developments are categorised according to their scale and potential air quality impacts, and mitigation costs are calculated. The developer must put in place mitigation proportional to the impact. This could include providing EV recharging points at an appropriate rate, drawing up a travel plan or contributing to infrastructure such as road improvements and cycleways.

WYLES is also working on the following projects:

1. **Ecostars** – this scheme, promoting cleaner fleet technology, is being lead by Kirklees Council

2. **Clean Bus Technology Fund bid** – a joint bid is being submitted, lead by WYCA, which aims to see the West Yorkshire bus fleet upgraded to reduce emissions, particularly in AQMAs. Currently, grant has been allocated and Calderdale will have 30 upgraded buses to add to the 14 existing giving a total of 44 out of 95 First Bus fleet in Calderdale upgraded.
3. **Publicity** – aiming to roll out an air quality publicity campaign based on one run in Leeds.

The draft Local Plan includes several environment-specific policies relating to air quality, and air quality is a consideration in other policies. This will help put air quality at the heart of the local decision-making process for development.

5.2 Transport infrastructure measures covering AQMAs

There are several projects underway or at an advanced stage of study that will have an impact upon air quality in the AQMAs. These are considered below.

5.2.1 Salterhebble (AQMA No. 1) – major works

Major work has started to improve the road link between Halifax and Huddersfield along the A629. This scheme will incorporate technological interventions to monitor and optimise traffic flows, and consequently reduce emissions of nitrogen dioxide and particulates within the AQMA compared against the 'do nothing' scenario. Real time emissions monitoring should allow the effects of the changes to be quantified.

The major works are being undertaken in phases, with some phases requiring an environmental impact assessment. The overall aims include attracting additional visitors to Halifax for work and leisure. This will inevitably increase road traffic along the A629, but the scheme will include steps to reduce emissions. If the traffic growth is as predicted there may be a detrimental effect on the air quality, although not in proportion to the increased traffic:

“For the opening year, the change in NO_x emissions compared to existing is 3.2% higher and 1.4% higher for the forecast year 2032, compared to emission without the scheme. This is contextual against the increased traffic volumes of 18% over the modelled period therefore in real terms the AQMA is relatively stable while accommodating more vehicle usage, so the scheme delivers a reduction in emissions, which are calculated using the Defra Emission Factors Toolkit (EFT).” [RB2018]

A combination of Central government funding, prudential borrowing and Council Tax has been allocated for this major project.

5.2.2 Sowerby Bridge (AQMA No. 2) – corridor improvement scheme

The CIP scheme for the A58/A672 involves a package of measures to improve highway efficiency for the benefit of all road users on the A58/A672 between Halifax and the Calderdale boundary via Sowerby Bridge, Ripponden and Rishworth. It is divided into two phases.

In terms of the impact on air quality the scheme has as an objective

“To not worsen air quality – ensure the annual mean nitrogen dioxide levels observed in the AQMA declared in Sowerby Bridge town centre are no worse than existing levels by opening year.” [LG2018]

Phase 1 works are to include upgrade works to the following junctions:

A58 Bolton Brow/A6142 Pye Nest Road;
A58 Bolton Brow/A6026 Wakefield Road;
A58 Wharf Street/A6139 Tuel Lane; and
A58 West Street /Sowerby Street/Station Road.

In addition, the relocation of on-street car parking along the A58 and modifications to bus stop locations/facilities are proposed linked to urban realm changes that will improve network operation and enhance the quality of environment for pedestrians in Sowerby Bridge town centre and contribute to improving the economic vitality of the district. This will be aided by the anticipated reduced car dominance.

The planned reallocation of road space also provides an opportunity for introduction of on-street cycling infrastructure through the town, linking the City Connect 2 route being developed along the Rochdale Canal to National Route 66 and the proposed Ryburn Valley Greenway.

Phase 2 involves a package of measures along the wider A58/A672 corridor to complement the advanced works developed as part of Phase 1. Whilst the indicative scope of Phase 2 interventions is yet to be defined, key locations where improvements are likely to be necessary include:

A58 Rochdale Road/A672 Oldham Road/B6113 Elland Road junction in Ripponden;

And A58/A646 junction at King Cross.

Measures to reduce capacity constraints posed by on-street car parking and bus stop locations in Ripponden and Rishworth will also be explored in order to improve network efficiency for all modes.

The funding is in place for these works subject to WYCA approval processes.

5.2.3 Hebden Bridge and Luddendenfoot (AQMA No. 3 and No. 4)

A funded Corridor Improvement Programme scheme has been approved involving a package of measures to improve highway efficiency for the benefit of all road users on the A646/A6033 between Halifax, Todmorden and the Calderdale boundary with Lancashire and Greater Manchester. This route forms a key route through western Calderdale and a principal cross-boundary link between West Yorkshire, Lancashire and Greater Manchester. The whole length of the A646, which passes through both AQMAs, will be covered by the scheme, with opportunities to upgrade walking and cycling routes as well as improving traffic flows and reducing congestion.

In terms of the impact on air quality the scheme has as an objective

“Improve air quality by making levels of nitrogen dioxide/particulates no worse than the baseline values and achieve the European target values in the two AQMAs declared in Luddenden Foot and Hebden Bridge by opening year.”
[LG2018]

To encourage a shift from private cars to bus use issues of bus reliability also need to be addressed.

The Bus Hot Spots Fund is part of the Local Transport Fund, a funding pot used for small scale interventions intended to improve bus reliability across West Yorkshire. While not specifically targeted at air quality reduction, improved bus reliability can increase patronage hence reducing car use. Improved bus reliability can also result in less time spent stationary in traffic, hence further reductions in emissions.

The Hotspots Scheme in Calderdale represents a sum of £20,000 to be spent in Hebden Bridge by March 2019. The main aim is to reduce parking on sections of the A646 by rail commuters on the eastern approaches to Hebden Bridge. This would be carried out in conjunction with proposed car parking improvements at Hebden Bridge and Mytholmroyd rail stations. At present excessive parking on this section of the A646 causes traffic congestion and delays buses causing reliability problems. Elimination of this problem would make bus services more reliable and reduce emissions. In turn this should help improve the air quality in the AQMA. Further work is in progress on the feasibility and effectiveness of this scheme.

5.2.4 Stump Cross and Hipperholme (AQMA No. 5 and No. 7)

The area North and East of Calderdale from Halifax along the A58 to Leeds and A6036 to Bradford is part of Calderdale's Key Route Network (KRN). These routes currently present a bottleneck for traffic at peak and shoulder peak periods. The village of Hipperholme includes an AQMA centred on the junction of the A58 and Brighouse Road, and at Stump Cross there is a small AQMA at the Leeds Road/Bradford Road junction (see Figure A5b). The traffic has been a long-standing problem for Calderdale and a politically acceptable solution has not been yet found. The traffic issues are restraining growth to business and housing growth in the area as well as contributing to the poor air quality.

Previously, plans to address the issues were solely focussed on the A58 at Hipperholme and Stump Cross. The Council is now looking to take a more holistic approach and look at a multi-modal package of measures across the entire area with the objective of *preserving* and *enhancing* the village of Hipperholme. Taking a transport planning approach instead of an engineering one, the scheme would look at the A58, A6036, A641 and the wider network of minor roads. The Council intends to build on the existing strong business case for a new rail station at Hipperhome and the creation of a high-frequency bus corridor. Potential for highway improvements will be included in the works.

5.2.5 Brighouse (AQMA No. 6)

The A641 Bradford-Brighouse-Huddersfield, including the A644 between Brighouse – M62 Junction 25, corridor forms part of West Yorkshire's Key Route Network (KRN)

and was identified as a multi-modal corridor in the West Yorkshire Plus Transport Fund's (WY+TF) initial scheme pipeline with delivery by 2023.

The A641 project is located across Bradford, Calderdale and Kirklees districts and the A641 corridor has issues in all locations, including at key junctions - most significantly in Brighouse, which has an AQMA due to road traffic emissions.

Initial pre-feasibility work on the A641 project established that there is a complexity to the transport issues in Brighouse, and that significant opportunity exists to use A641 WY+TF investment to resolve these issues and to enable the realisation of Brighouse's economic growth potential and Local Plan site development in Calderdale, Kirklees and Bradford. Thus the vision for the A641 Project is:

"To improve efficiency and connectivity for all modes travelling along the corridor between Bradford, Brighouse and Huddersfield; enhancing accessibility to key growth sites, and facilitating economic development across Calderdale, Kirklees and Bradford."

The A641 project will identify interventions across all travel modes for the A641 between Odsal Top in Bradford and Huddersfield Ring Road, and the A644 between Brighouse and M62 Junction 25. Potential phasing of interventions will be considered to establish if opportunities for early delivery exist; potential interventions deliverable via other projects will also be identified, such as reviewing Brighouse rail station parking.

Halifax is the most important employment destination for Brighouse residents beyond Brighouse itself. Brighouse – Halifax public transport movements and the A6025 corridor between Brighouse and Elland have been added to the scope of the project.

The A641 Project seeks to unlock development and facilitate employment growth. This goal is not incompatible with improvements to air quality, especially as improved traffic flows around the town centre ring and between the town and the M62 may lead to reduced emissions. The project aims to reduce congestion and improve journey time reliability on the A641/A644/A6025 for all travel modes to facilitate economic development, to unlock land for employment and housing growth and to increase the availability and use of sustainable transport modes. Aspects of the project include improved walking and cycling routes, improved public transport reliability and hence an incentive to shift from private vehicle use to sustainable modes of travel.

5.3 Other schemes with potential air quality benefits

5.3.1 District heating

Although district heating is primarily aimed at improving energy efficiency it can have benefits in terms of reduced emissions from domestic and commercial fuel burning.

Calderdale Council is working to implement a district heating scheme close to Halifax town centre using natural gas to provide heat to homes and commercial premises in that area. It is hoped that many small heating systems will be replaced by this single, more efficient system, with the consequent efficiency and air quality benefits.

5.3.2 In-house incentives to travel sustainably

The Council runs several schemes aimed at encouraging staff to use their private vehicles less. Some of these schemes have other benefits such as keeping staff active and healthy. The main schemes operating at the moment are:

- Pool Metro cards – free public transport for work related business such as meetings e.g. in Leeds. The uptake has been excellent.
- Pool electric bicycles – staff can book electric bikes for work related trips, instead of taking their cars.
- Discounted annual metro card – staff can apply for a metro card (public transport ticket) at company discount rates.
- Car sharing scheme – staff can register to offer or request lifts to and from work

5.3.3 Cycling strategy

The Council has developed a cycling strategy [CMBC17B], from which the following extract is taken.

Our vision is to make Calderdale a nationally recognised centre of cycling excellence where residents, visitors and tourists of all ages and abilities can safely cycle for utility, commuting, leisure and sporting pursuits.

Everyone is able to use an intuitive and integrated network of high-quality on-road, greenway and off-road routes, connecting communities, activities and destinations, whilst improving their health, wellbeing, and contributing to economic growth.

This vision for the future is underpinned by a simple principle to connect people to places and activities. To support our vision we have developed a set of high-level objectives to inform the individual elements of our strategy;

- To make cycling safe, attractive, accessible, achievable and inclusive for all, particularly for those who presently don't ride
- To make cycling a part of Calderdale residents' day-to-day travel choices to improve health, wellbeing and productivity
- To improve cycle facilities both on- and off-road, as well as links between the two, including improving the size, legibility, connectivity and accessibility of the network
- To enhance cycling within the active leisure and tourism offer to increase its contribution to the local economy
- To make Calderdale a nationally recognised cycling centre for locals, visitors and tourists alike.

While air quality improvements are not explicitly set out in these objectives, the overall approach to promoting active travel does carry this additional benefit, when people are able to switch easily from private vehicles to active travel.

Improvements to the cycling network will be sought whenever the opportunity arises, for example when major developments and road schemes are proposed.

5.3.4 Air quality data for the public

The Council is a sponsor of the ODI Leeds and has taken part in events aimed at improving access to, and adding value to, open data. This includes data published on the Calderdale Dataworks website. The Council is working to improve the presentation and accessibility of its air quality monitoring data. In future this is hoped to include the dissemination of live air quality data and advice, and work is progressing on this aspect.

6 Conclusions and future vision

The Council recognises that there are steps it can take to tackle air pollution in its Borough. The main cause of that pollution is road traffic, and all seven AQMAs have been declared on the basis of elevated levels of traffic-related pollution. The Council has very little influence over vehicle standards and emissions, and must seek to influence other aspects of the road transport system. Therefore this Action Plan is focused on transport and on projects that will reduce congestion, improve flow or encourage people travelling to, from and within the Borough to use public transport, walk or cycle.

The ambitious road schemes currently underway or at an advanced stage of planning are central to the Plan, but the improvements to the rail network will also play a pivotal role. Active travel and the development of walking and cycling routes also have a key role to play.

Other pollution sources are not being neglected, and the Council is seeking to reduce emissions, for example through the environmental permitting system and the development of district heating.

The Council's aim is to integrate air quality considerations into its policies on all aspects of development and wider change from the outset rather than to see it as an add-on. By implementing this action plan in association with its other strategies we hope to make a significant improvement to air quality in the AQMAs and across the Borough

Appendix A: Maps of Calderdale's AQMAs

Key to each map:





-  Boundary of AQMA
-  Location of discontinued monitoring location. Monitoring by passive diffusion tube.
-  Location of current monitoring location. Monitoring by passive diffusion tube.
- AQ4** Monitoring location reference.
- 
7728 Department for Transport traffic census point number.

Figure A1a: Salterhebble, Halifax (Calderdale No 1 AQMA)

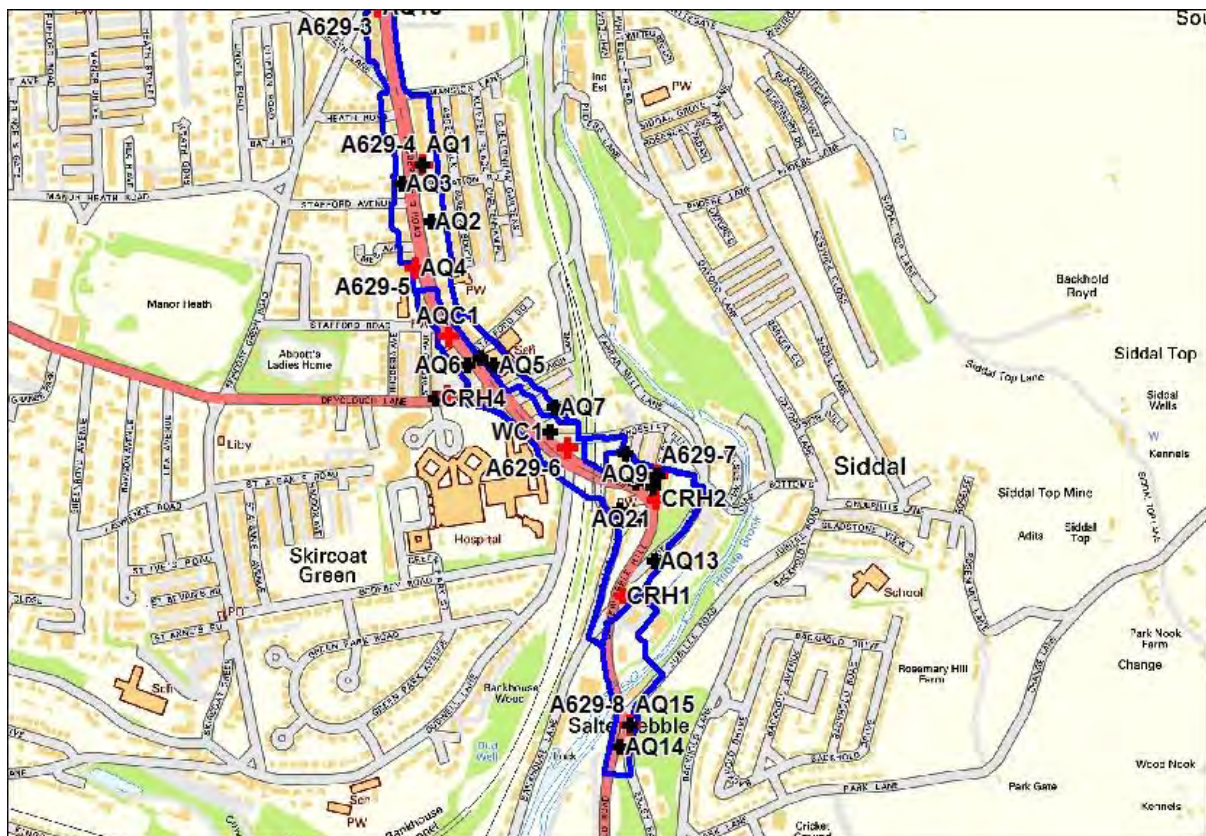


Figure A1b: Salterhebble traffic census points



Figure A2a: Sowerby Bridge (Calderdale No 2 AQMA)



Figure A2b: Sowerby Bridge traffic census points

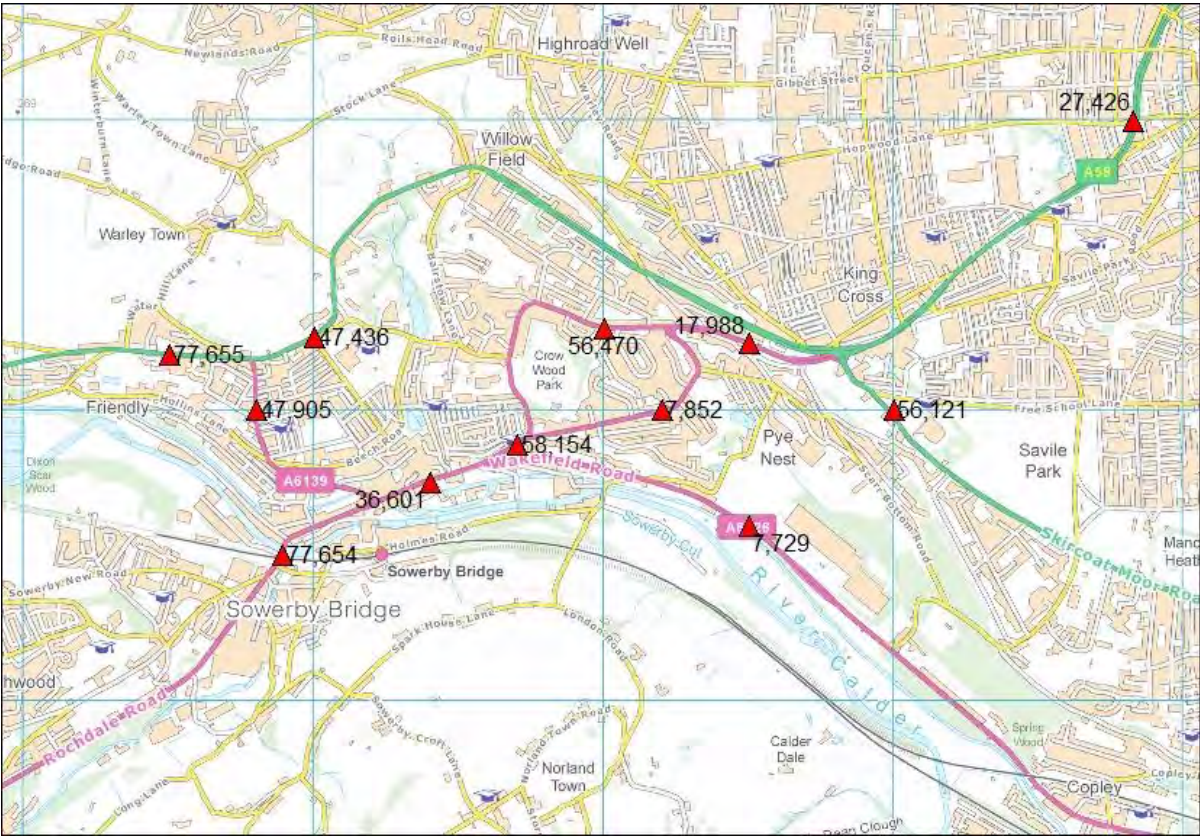


Figure A3a: Hebden Bridge (Calderdale No 3 AQMA)

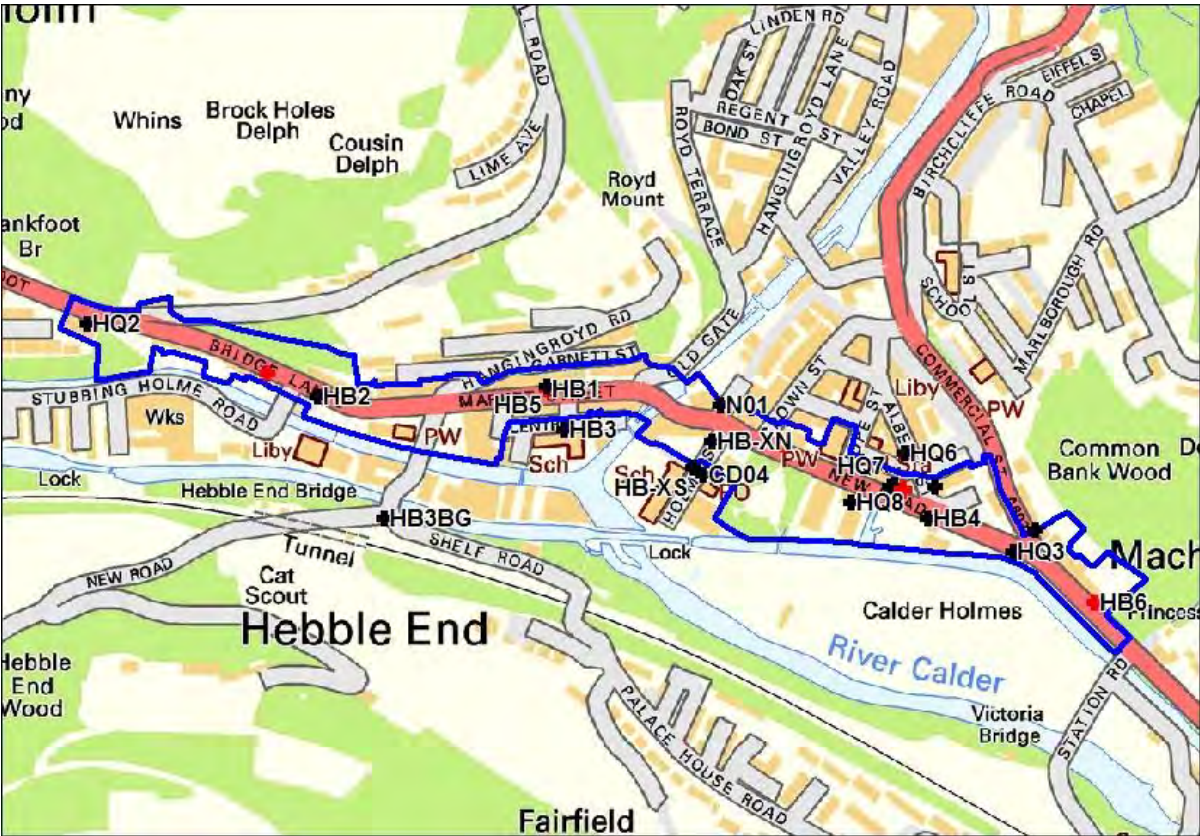


Figure A3b: Hebden Bridge traffic census points

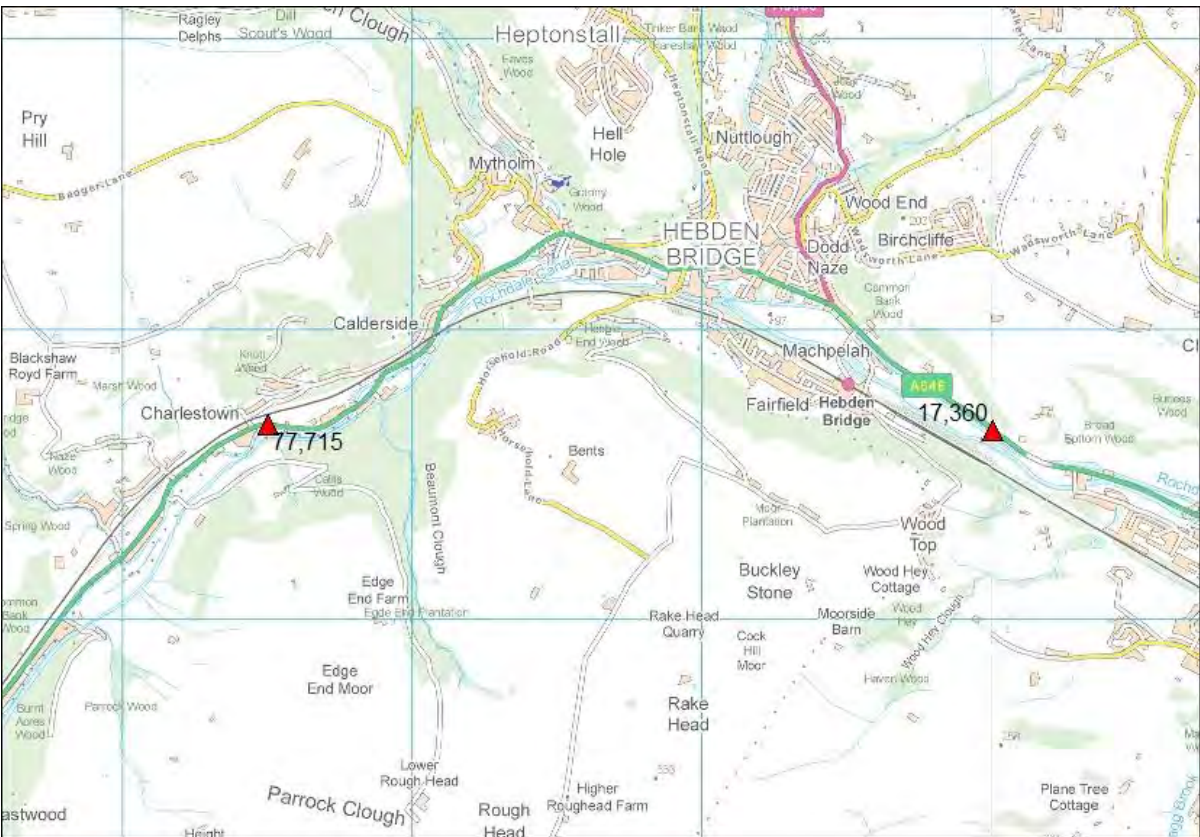


Figure A4a: Luddendenfoot (Calderdale No 4 AQMA)

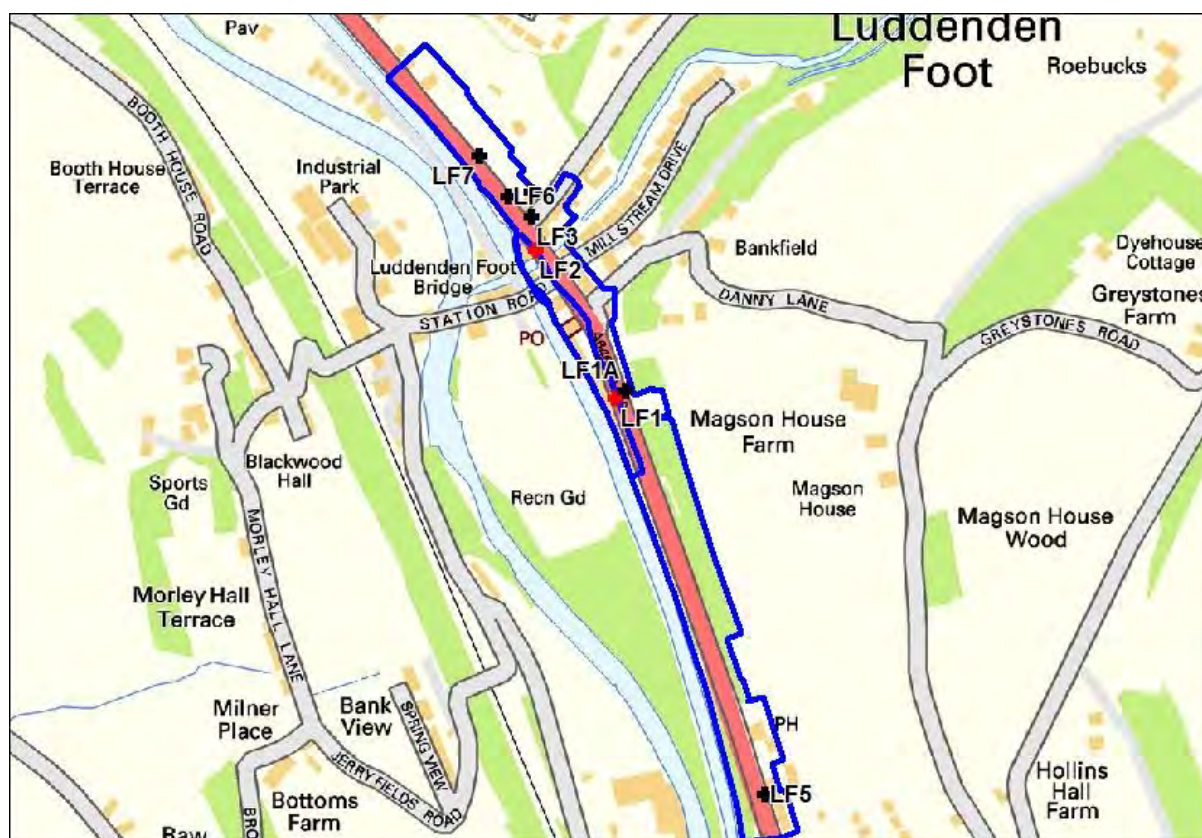


Figure A4b: Luddendenfoot traffic census points

See data for Sowerby Bridge and Hebden Bridge

Figure A5a: Stump Cross, Halifax (Calderdale No 5 AQMA)



Figure A5b: Stump Cross, Halifax traffic census points

Figure A6a: Brighouse (Calderdale No 6 AQMA)

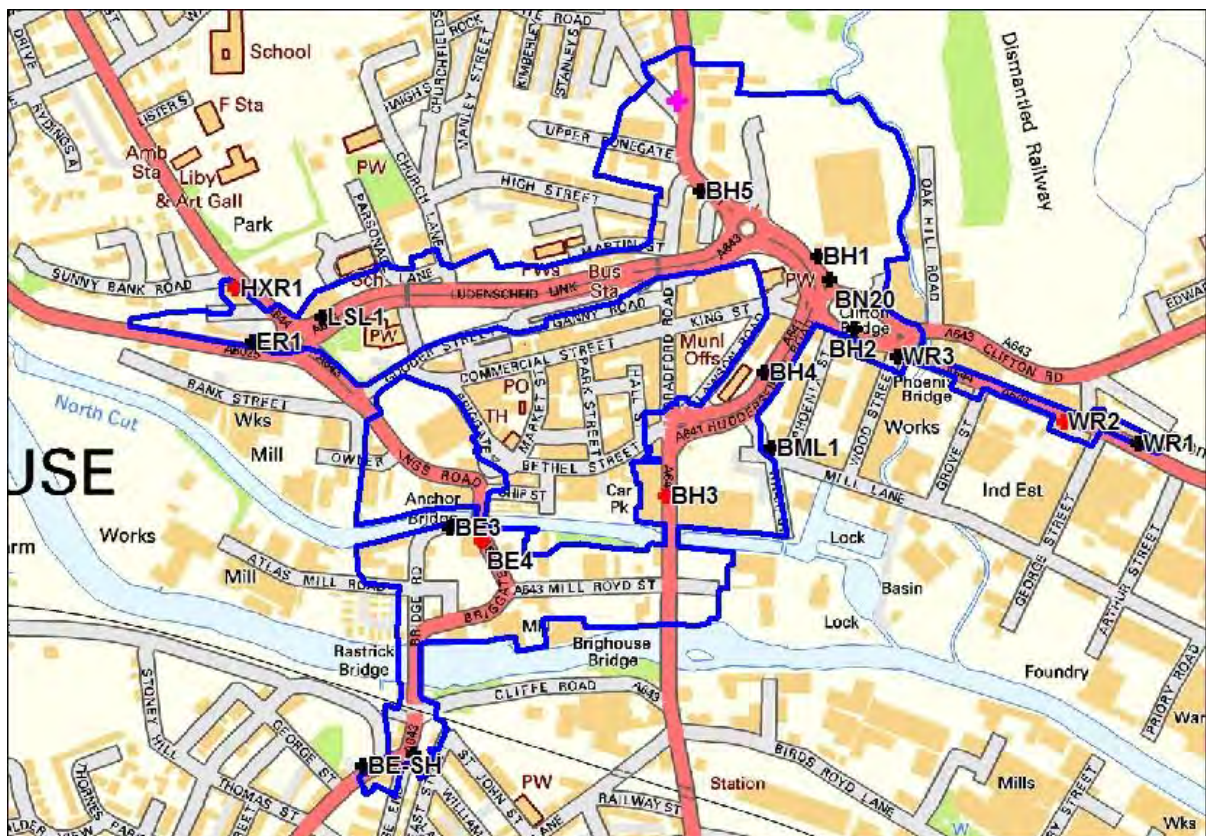


Figure A6b: Brighouse traffic census points



Figure A7a: Hipperholme, Halifax (Calderdale No 6 AQMA)

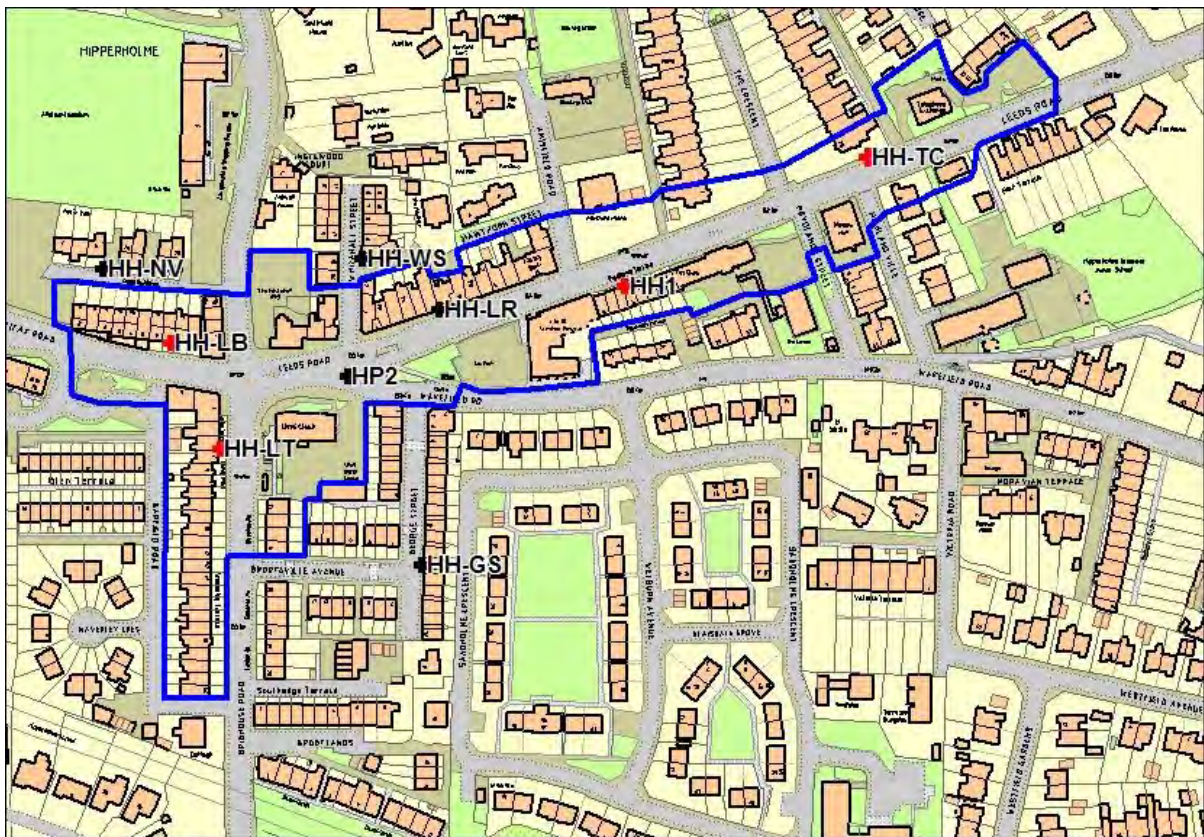
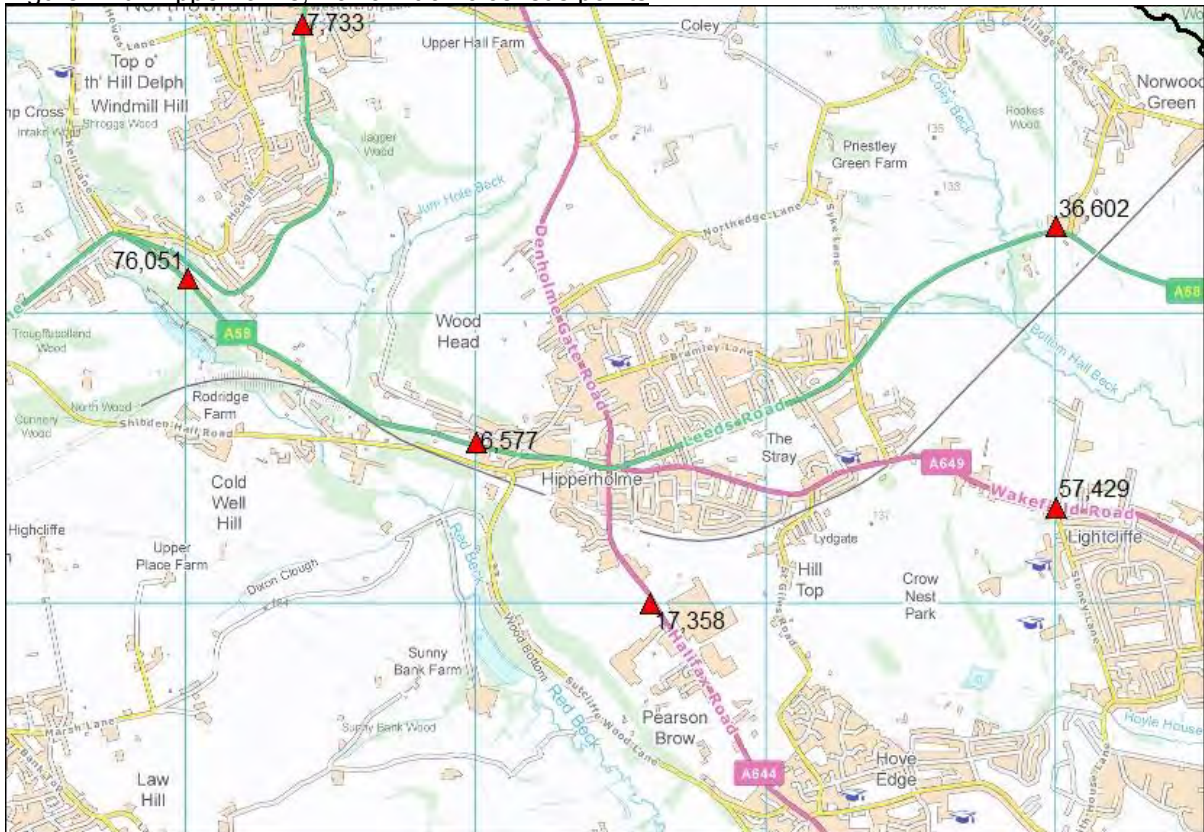


Figure A7b: Hipperholme, Halifax traffic census points



Appendix B: consultation responses

Table A.1 – Summary of Responses to Consultation and Stakeholder Engagement on the AQAP

Consultee	Category	Response
Residents panel (initial consultation on air quality attitudes, June 2017)	Community	Air quality is a significant issue for the majority of respondents. Many were not aware of the Council's monitoring. Suggestions made for better presentation of data, and a clear message that action is more important than monitoring.
Public	Community	The Action Plan is flawed because it fails to address the central problem of dependency upon road transport.
Public Health		No response
DEFRA	Government	Detailed response including questions about quantification of costs and improvements.
Environment Agency	Executive agency of Defra	No response received
Neighbouring LAs	Local Authority	No responses from neighbouring LAs
Calderdale FoE		Response focuses on Low Emissions Strategy

Appendix C: Reasons for Not Pursuing Action Plan Measures

Table B.1 – Action Plan Measures Not Pursued and the Reasons for that Decision

Action category	Action description	Reason action is not being pursued (including Stakeholder views)
	Complete table for all measures that will not been pursued.	Add a 2-3 sentence summary for each action
Public transport	Park and ride	High cost and difficulty in identifying land.
Demand management	Road user charging	High cost of infrastructure, unpopular measure with the potential to adversely affect local economy.
Vehicle emissions	Fixed penalty notices for leaving engine idling	Would not address air quality in AQMAs, where vehicles are less likely to idle. Other measures would be more effective in keeping traffic moving.
Vehicle emissions	Low emissions zone	Not mandatory (see [DE17]), with high infrastructure costs. Could adversely affect local economy, as well as potentially displacing the problem to other areas.

Appendix D: WYLES objectives

Ref	Objective	Notes
001	A Clean Air Zone will be introduced within the Leeds district, and elsewhere where necessary, to control emissions from the most polluting vehicles.	Calderdale is considering the impact that the proposed CAZ in Leeds may have on its area.
002	We will work with West Yorkshire bus operators to accelerate investment in newer buses, emission abatement technology and alternative fuels and technologies to reduce emissions through the implementation of the West Yorkshire Bus Strategy and Bus 18 Project.	The bus fleet used in Calderdale is of mixed age (2000 registration buses on some routes, including routes through AQMAs) This objective is important for reducing emissions.
003	We will accelerate the uptake of plug-in electric cars and vans through improved electric vehicle charging infrastructure and the implementation of an Electric Vehicle Strategy.	EV recharge points are now routinely required for new developments, and further implementation of on-street recharging is under investigation.
004	We will introduce the Eco Stars fleet recognition scheme to support businesses, bus operators and public sector fleet managers to reduce emissions from their fleet operations.	Eco Stars has been implemented in Calderdale and is being actively pursued.
005	We will work with our partners to develop infrastructure to support alternative fuels and technology for transport including: natural gas, biomethane, LNG and hydrogen.	Not yet developed in Calderdale.
006	We will support the taxi industry to help the transition to low emission vehicles including demonstrating economic benefits; supporting funding bids and considering policy incentives to promote the uptake of ultra-low emission taxis.	Licensed trade engagement has already begun. Further progress anticipated as electric recharging infrastructure develops.
007	We will use the West Yorkshire Transport Strategy and Leeds City Region Strategic Economic Plan to help deliver the WYLES objectives, including improved cycling and walking provision; better public transport; low emission energy production and use, and sustainable infrastructure to deliver "Good Growth".	The themes of this objective are central to Calderdale's air quality strategy.
008	We will use the West Yorkshire Air Quality and Planning Technical Guide to deliver sustainable developments and deliver air quality improvements.	WYLES guidance used.

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009	We will use our influence to promote low emission transport through the use of the West Yorkshire Low Emission Procurement Guide in the procurement of vehicles, goods and services and lead by example to reduce emissions from our own fleet operations.	Low emission vehicle trials underway in house.
010	We will continue to raise awareness of the impact of poor air quality with the public, policy makers and partners to improve air quality through changing behaviour, influencing policy, access funding and working together to deliver the objectives of this low emissions strategy.	Improvements to practical public engagement are underway, including campaigns, web page improvements and progress with aim of making live monitoring data available.

Appendix E: Action Plan Governance

The Council will put in place a monitoring programme to ensure that the action plan is delivered. The table below, which should be read together with Table 5, sets out the actions and summarises progress to date and responsibilities. This table will be updated in future Annual Status reports.

Action	AQAP no/measure	Progress to date	lead	KPI
Action Plan development				
Review air quality steering group members and agree terms of reference and format of action plan		Terms of reference and action plan format to be agreed at steering group meeting 18 June 2018	Named	NA
Establish low emissions/air quality delivery group		Steering group to agree the make up of the delivery group and how the action plan should be monitored.	Steering group	NA
Review feedback from consultation on strategy and action plan		Consultation extended to end June	Named	NA
Monitoring and measurement				
Measure air quality at key sites and routes		Ongoing - tubes and measuring sites. Also need information from major projects around monitoring of air quality. Need to investigate whether and how we make live air quality data available.	Named	Data collection
Measure roadside emissions from different vehicle types		Work has been done on this by Leeds in previous years but no report done. Need to agree whether further analysis required.	TBC	Data collection and raising awareness
Traffic Management				
Signalling strategies to be developed and improved		Proposal through WYTF to link all district signals to one system and join services together in Leeds. Need to work with Highways England to ensure shared understanding of roads. Need to understand usefulness of UTMC for different routes	TBC	Improved traffic flows
Need to have better understanding on MOVA type technology to ensure we are up to date with most effective solution. Make sure that we use Leeds UTC in all signalling and junction projects.		MOVA has been used at Stump Cross and Hipperholme. Resource/skill development needed to undertake understanding of use of smart technology in UTMC	Named	Improved traffic flows and queue lengths at key sites

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Improve real time messaging to drivers using VMS.		VMS sites displaying route messages established. A629 to have new messages added. Further locations to be developed - ongoing and part of LTP scheme. Potential strategy document to be developed which links to west yorkshire key route network board	Named	Improved traffic flows, reduced congestion
Development of parking strategy		Assess feasibility of technology to assist strategy development eg VMS signage. Parking standards incorporated within the local plan.	Named	Improved traffic flows
Improve traffic flow by improving signals needed to allow for interaction with freight/van in cab technology		Kirklees is piloting in cab technology to give link between cab and signals. Learning from this to be shared when available. Signals will need upgrading - plan needed for funding source, timeline and strategy for contact and agreement with freight owners	Named	Improved traffic flows, reduced congestion
Traffic Planning and Infrastructure				
Develop package of works to alleviate congestion. Corridor Improvement Programme -- A646 and A58/A672 corridor resilience; A629 corridor improvements		Sowerby Bridge outline proposal complete - outline business case only. Hebden Bridge and Luddenden Foot same stage. A629 corridor improvements are a range of active delivery projects (phases a1, 1b, 2, 3, 4 and 5) being delivered as part of the WY+TF.	Named	Improved traffic flows, reduced congestion
Develop NE Calderdale Transformational Project Package to alleviate congestion on A58 Hipperholme and A6036 Stump Cross		Package may include works in the wider NE Calderdale network. Only funded pre feasibility.	Named	Improved traffic flows, reduced congestion
Improve A641 corridor Brighouse		Being delivered as part of WY+TF	Named	Improved traffic flows
Creation of new junction (24a M62)		Led by Kirklees - a WY+TF scheme - important as should improve impacts on the network	Named	Improved traffic flows
Make A644 Cooper Bridge air quality compliant		Feasibility study parts 1 and 2 completed, part 3 submitted. Bring forward compliance on air quality for the Calderdale section of Cooper Bridge. Trialling Defra low emissions factor toolkit on this area.	Named	% decrease giving measured concentration of xx

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Develop action plan from cycling strategy		Plan to be developed	Named	Increase in cyclist numbers
Develop cycling signage strategy		Plan to be developed	Named	Increase in cyclist numbers
Assess cycle route feasibility		Feasibility schemes at various levels of completion	Named	Increase in cyclist numbers
Upgrade of Upper Valley towpath		Programme funded for works between S Bridge and H Bridge - active bids in place to fund further works in phase 2 to Todmorden	Named	Numbers using towpath
Improve lighting of key cycle routes		No funding yet identified	Named	Increase in cyclist numbers
Improve cycle parking in town centre		Demand led - case by case.		Increased cycle parking bay use
Incorporate air quality into planning considerations for new developments		Developing a planning policy document to include the production of travel plans within the development management process	Named	Policies applied to all developments
Development of cycling and walking strategy and programme		Walking and cycling infrastructure plan to be developed. LCWIP to be used in development.	TBC	Increased numbers walking and cycling
Improve access to Halifax station		Halifax station gateway improvements WY+TF scheme linked with Halifax town centre improvements	Named	Improved transport integration
Improvements to Calder Valley rail line and service		Development of station at Elland including access and parking. Delivery expected 2022. WYCA to start work on new base plan and production schedules being developed.	Named	Improved transport integration
Develop strategy for total transport/mobility hubs		Strategy and plan to be developed around integration of services in one hub. Potential for a demand responsive service and incorporation of links to signposting or apps relating to walking and cycling routes.	Named	Improved transport integration

Create 'Healthy Streets' with aim of more attractive, accessible and people friendly streets		Public Health England is taking a lead to scope what a Healthy Streets approach might look like in West Yorkshire and which organisations it could involve - starting with an investigation of related local transport and other strategy and policy. PHE has provided set of questions based on TfL's Healthy Streets indicators to scope interest in, and the suitability of, a Healthy Streets approach.	Named	Policies applied to all developments
Low Emission Strategy and Transport				
Install charging facilities for taxis and for public use		Installation of EV charging points - grant allocation from west yorkshire. Leaders briefing/cabinet paper done. One Uber electric taxi now available.	Named	Number of EV charging points
Procure ULEVs within Calderdale fleet where practical		ULEV not suitable for Calderdale fleet within existing infrastructure and the fleet has been/and is being replaced by LEV euro 6 engines. ULEV is considered within the procurement process for all vehicles. One handyman van is now ULEV. Steering group needs to input on process for future procurement	Named	Reduced vehicle emissions
Promote usage of electric charging facilities		Supplier will promote location and usage	Named	Usage of EV charging points
Promote uptake and usage of electric vehicles		West Yorkshire Electric Vehicle strategy in development	TBC	Uptake of vehicles
Install on street electric car charging using OLEV funding of £100k		Business improvement identifying areas using MOSAIC to help prioritise locations.	Named	Usage of EV charging points
Identify budget and funding opportunities to deliver low emissions strategy objectives		To be put on steering group agenda	TBC	
Investigate ECO stars scheme		ECO stars already committed to and funded by WYCA. Calderdale to investigate scheme and develop contact strategy with business owners to encourage take up	TBC	number of partners signed up
Improve bus fleet quality		In partnership with WYCA and bus operators. 30 buses to be upgraded 2019.	Named	Reduced vehicle emissions

Respond to Defra draft clean air consultation		Consultation closed 14 August 2018 - complete	Named	Response submitted
Public Awareness of air quality				
Measure air quality in local communities and raise awareness of issue		develop air quality identity; update webpages; potential inclusion of live monitoring data; develop communication material for print media and messages for PR/social media	Named	Data collection and raising awareness
Develop communications campaign including engagement, web pages and social media		Link in with active calderdale and love our streets. Requirements and communications brief to be agreed.	TBC	Improved awareness of air quality issues
Engage with local communities to raise awareness of AQ impacts		Safer Cleaner Greener days of action now include clean air. Road Safety Partnership delivery group have air quality on the agenda and safer greener team attend these meetings.	TBC	Improved awareness of air quality issues
Investigate feasibility and scope of a non-charging clean air zone or air quality focus area		Sowerby Bridge potential area to test a 'targeted action plan area' - low emission neighbourhood could be title. Awaiting feedback from Defra. An outline of the types of activities involved to be given to the Sowerby Bridge Town Board in November – e.g. schools packs and competition; improved walking route signage; EV charging points; bus service improvements	named	
Capitalise on national events to raise awareness		Clean Air day is 22 June and will be promoted internally but needs to be factored into wider communications plan.	TYBC	Improved awareness of air quality issues
Promoting Travel Alternatives				
Increase car sharing and alternative transport		Promotion of car sharing internally at CMBC ongoing. Further promotion with external companies required via workplace health. Promotion of car clubs e.g. Enterprise	Named	Increased numbers using sustainable modes of transport
Promote public transport as alternative to car		Needs to be coordinated with work undertaken by WYCA/Metro. Free first bus ticket incorporated in council tax statements 2018.	TBC	Increased numbers using sustainable modes of transport

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Promote LEV for taxis		Bid to ULEV for charging facilities for low emission taxis. West Yorkshire money available for 2 charging points across the district. The supplier chosen to install will help to advertise these.	Named	Uptake of vehicles
Promote bikeability and bike library		Programme continues and is promoted by all services	Named	Take up of schemes
Promotion of alternative transport to Calderdale staff		Promotion of metro cards, electric bikes, discounted travel card, bike and go integrated cycle scheme continues.	Named	Take up of schemes
Develop schools active and safe travel strategy - linked to reducing obesity and road safety		Obesity workshop up and running led by Public Health	Named	Increased numbers walking and cycling
Park and ride expansion at rail stations		Funded improvement schemes are being progressed at Mytholmroyd and Hebden Bridge stations	Named	Improved transport integration
Ensure that Calderdale's needs are included within Northern Powerhouse Rail and HS2 connectivity and integration		Reported at WYCA Transport committee	Named	Improved transport integration
Bus Partnership agreement to be established		Bus 18 is established at West Yorkshire level. A voluntary agreement and partnership to get commitment on operating standards, information, new technology development	Named	Number of partners taking part
Rights of Way Improvement Plan to be developed		Plan needs to identify ways to promote and raise awareness of the routes	Named	Increased numbers walking and cycling
Promotion of alternative transport to school		Safe travel SAFE (Sustainable, Active, Fun, Environmental) cup competition run in schools each year by independent travel team. Schools develop campaigns about travelling to school in healthier and safer ways.	Named	Increased numbers walking and cycling
Compatibility with other programmes				
Carbon savings and improved energy performance of homes and businesses		Feasibility of Halifax district heat network in Halifax centre for businesses and council portfolio. An air quality impact assessment is likely to be needed.	Named	
Promote energy saving and renewable energy schemes		Calderdale Community energy webpages established and projects undertaken with schools	Named	

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Support businesses to manage energy consumption and save money		6c working with businesses, schools and colleges	Named	
Review environmental permits for all types of units/installations		Inspection programme is in place	Named	

Appendix F: Consultation responses

The consultation was publicised on the Council's website, social media, letters to statutory consultees. Several consultees responded to the draft action plan.

Defra

The main points of Defra's response are set out below with notes on how the matters raised have been taken into account.

The current Draft Action Plan has been developed in consultation with other local authorities, agencies, businesses and the local community, full public consultation is required before the final action plan is adopted.

1. There is currently no formal steering group tasked to take forward the development of the Action Plan, however the Council has established an air quality strategy group which meets monthly to set actions, review progress and share ideas.
2. The Council should consider the process for taking forward the Action Plan and developing further, as detailed within Chapter 2 of the latest Technical Guidance from Defra in LAQM TG(16). The guidance makes specific reference to the importance of a steering group to co-ordinate the further development of the Action Plan. **Response:** the role of the Council's strategy group is effectively to coordinate the development and oversee progress with the action plan, i.e. that of a steering group.
3. The draft Action Plan has been subject to consultation with key stakeholder groups, but full statutory public consultation has not taken place. The draft is presented as in preparation for a Consultation Draft, when statutory public consultation is scheduled. **Response:** full consultation took place in the early summer 2018.
4. The required level of emissions reductions required, as presented in Section 3.4 show a high degree of variability within each AQMA. This suggests the Local Authority need to carry out further assessments of traffic and emissions characteristics within each AQMA. Without a clear understanding of the nature of the pattern and source of exceedances within each AQMA, it may be difficult to prescribe measures to deliver the required levels of emissions reductions. **Response:** the variability, which is discussed in the report, is inevitable given the data available. The nature of the pattern and source of the exceedances can be identified in each case and the Council considers that the variability does not undermine the validity of its conclusions.
5. There is a consideration of the variation in emissions characteristics with speed, highlighting that the Calderdale AQMAs are centred on road sections where speeds are generally low, adding further support to measures that can address traffic flow and management of congestion.
6. The Technical Guidance TG(16) states that the Local Authority should subject their AQAP measures to an impact assessment that provides a clear estimate of the emissions reductions the measures may be expected to deliver within an agreed timescale. **See response at point 8.**

7. It is also expected that there will be an assessment of whether the package of within the AQAP can expect to meet air quality objectives. These are expected to be reflected within a final action plan and future ASR reports.
See response at point 8.
8. There is no evidence that the measures presented in Table 5 have been assessed for their impact and potential effectiveness to reduce emissions in the AQMA, and emissions reductions have not been quantified to an agreed timescale. The columns in Table 5 for Lead Authority and Target Pollution Reduction in the AQMA should be re-instated and completed within the next ASR report to update Action Plan progress. **Response:** estimates of the impact of measures have not proved straightforward, given that many of the proposed schemes are complex and long-term. Some estimates, undeniably coarse, have been added to the relevant sections of the Action Plan. Table 5 has been redrawn to include the information suggested here, and an additional table has been included as Appendix E.
9. Measures should be prioritised according the most significant impact on emissions and cost-benefit analysis ranking, to provide a focus on implementing the most effective measures. **Response:** the schemes tend to be prioritised on other criteria in practice, for example congestion reduction and eligibility for funding.
10. The AQAP should also identify those measures that remain as options for further consideration but don't have approval or funding associated. These have been included in Appendix C, but are not detailed. These measures should have estimates of the emissions reductions expected to be realised, and a development timetable.
11. In developing the Action Plan, and taking measures forward, the Council should follow the guidance within the latest LAQM Technical Guidance LAQM TG(16) in relation to strategies for developing final action plans. **Response:** the Council has considered this guidance and will continue to take it into account.
12. It will be important to make clear within the following ASR report, what measures are being adopted, funded and actioned. It is not currently clear within this stage of the action plan, which measures have secured funding, and the costs of each measure have not been included. **Response:** this has been clarified where possible in the relevant sections of the Action Plan.
13. It is clear from the draft report that the Local Authority is already engaged with wider groups including West Yorkshire Combined Authority, Transport providers, with links to Transport and Planning Policy. The final action plan should make clear if measures are integrated into local transport plans or other funded programmes.
14. It is also unclear which bodies are responsible for each measure. The AQAP should include defined roles and responsibilities that detail how the local authority and other delivery partners, including transport, planning and health departments, will take ownership of the problem and in what capacity they will work together to implement the AQAP (TG(16) para. 2.69). **Response:** commentary has been included where the required level of detail is available.
15. For this reason, to aid transparency in future reporting the Council may wish to consider developing an implementation plan to clarify the delivery status of action plan measures. There needs to be a clear distinction in future reporting for the final action plan, and ASR reports between measures that

are under consideration, and those that have been proposed, and those that are being actioned through funded programmes. **Response:** Appendix E is a first step towards achieving this level of clarity.

16. The AQAP reports in detail on the progress of the 2009 AQAP. However it is unclear if and how the on-going 2009 AQAP measures will be incorporated into the new AQAP, and whether any proposed measures will be integrated into the Local Transport Plan. **Response:** ongoing measures are being carried forward, with integration into other plans where appropriate.
17. It is important that the local authority shows how it intends to monitor and evaluate the effectiveness of the plan as measures are developed and actioned. The Council may wish to consider developing an implementation plan for this purpose. It is not currently clear how all listed KPI's can be quantified to monitor progress with the action plan. **Response:** Appendix E shows the likely reporting format for future ASRs. The KPIs will also be reviewed.
18. Further reporting on the progress with implementing the action plan will take place through the annual status reports.

Highways England

This response consisted of a commentary on the Action Plan setting out some opportunities for joint working. The response is noted and welcomed.

Public Health England

No response was received.

Neighbouring Local Authorities

No responses were received.

Public and local groups

Several responses were received from individuals and groups, with some criticisms of the approach taken by the Council. Calderdale Friends of the Earth did not support the Low Emissions Strategy and were critical of the role of WYCA. On the AQAP the specific comments noted

Whilst this relationship [between the LES and the AQAP] is expressed diagrammatically on p.3 of the LES, and Calderdale's existing seven AQMAs are listed in table 2 on page 6, there is otherwise little actionable connection between the two. (Please note: we're not overlooking section 5.2 of the AQAP Transport infrastructure measures covering AQMAs, just challenging the absence of an evidenced relationship between such measures and the

achievement of lawful AQ levels in each AQMA). At the local level (rather than the WY one we have been criticising above) this is one of the two major weaknesses in these documents; the second is that the AQAP is presented throughout in a format which is technically inaccessible to members of the public, and where the connection between its measurements & proposals and the individual AQMAs is not made. **Response:** 1. **Connection between LES and AQAP.** The Low Emissions Strategy takes a strategic position on road transport emissions and may be seen as setting out the approach to emissions adopted by the Council. The AQAP considers the AQMAs and actions intended to improve air quality within those AQMAs and more widely. Quantification of the effectiveness of the actions is not, as noted above, a straightforward matter, but some modelling has been carried out for some of the major projects and this has been added to the body of the AQAP. 2. **Technical nature of AQAP.** The format of the report is in part set by the government. The Council considers that it is important to give evidence, where feasible, for its proposed actions, and some of this evidence is based on technical information such as emissions calculations. The Council accepts that the technical content may put people off reading the report, but feels that this is balanced by the non-technical commentary and descriptions of measures. A non-technical summary is also included.

Specific comments provided by individuals are considered below.

1. Simply managing existing patterns of transport e.g. reliance on the private car and not actively promoting modal shift is not supported. **Response:** the Council aims to actively promote the use of active travel including cycling and walking. However the transport paradigm for the UK is undeniably centred on road vehicles, with huge resistance to measures that may be seen to 'penalise' drivers. The Council's own major schemes are intended to make it easier to travel by road into the Borough's commercial and enterprise centres and air quality improvements is a consideration in developing the schemes.
2. Air Quality is a public health crisis, in Calderdale and West Yorkshire. The measures proposed in the Draft Air Quality Action Plan are wholly inadequate to address this crisis. The Council needs to be bold in its decision making, but it needs (hence the reference in the Executive Summary to the public being engaged in policy decisions that impact on travel) to involve the public in those decisions in a meaningful way. **Response:** the Council seeks to publicise its work and engage with the public through consultation, including local events such as those run for the Corridor Improvement Schemes. The Council would welcome better engagement with the public on air quality and transport matters and some proposals for this are included in the report.
3. If the public understood that the massive sums of money being spent on Salterhebble (and the "Corridor Improvements" currently in the pipeline) will not actually have any significant impact on inbound congestion or journey times, and will not achieve the levels of reduction in pollution levels identified in the Draft AQAP as being required at the various AQMZs, then they might be prepared to support measures that encourage and secure a reduction in the number of journeys made by private car, and increase the number of journeys made by public transport, walking and cycling. **Response:** the A629 project is

a major project that has been planned and evaluated on the basis that it will reduce congestion and improve traffic flows along the corridor. It has been modelled on the evidenced assumption that it will bring more visitors to Halifax with consequent economic benefits. Other major projects are also economically driven, but also have a requirement to consider and address air quality impacts.

4. The Council was bold, and is a national exemplar, with its introduction of 20 mph speed limits across the Borough. This was a public health initiative impacting on travel. The time has come for this approach to be extended, but the current Draft AQAP is not going to achieve this. **Response:** the AQAP will be supported by a robust evaluation and monitoring process. It is intended to be a living document with opportunities for more ambitious schemes and ideas to be adopted as technology and understanding evolve.
5. The current Draft Air Quality Action Plan should be withdrawn, and the Council come up with some bold proposals that would actually have a significant impact on improving Air Quality levels in the areas subject to the seven Air Quality Management Zones. **Response:** while recognising that the AQAP has limitations in terms of its scope the Council intends to continually review progress and seek opportunities to develop the AQAP in partnership with others rather than withdrawing it.

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'.
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives (e.g. annual mean)
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs – the government department with responsibility for air quality
EU	European Union
HE	Highways England
LAQM	Local Air Quality Management
MOVA	Microprocessor Optimised Vehicle Actuation [Dft97]
NO ₂	Nitrogen dioxide – gaseous pollutant associated with combustion
NO _x	Nitrogen oxides including nitrogen dioxide
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less, so that PM ₁₀ includes PM _{2.5}
UTM(C)	Urban Traffic Management (control)
ULEV	Ultra-Low Emission Vehicle
VMS	Variable Message Sign
WYCA	West Yorkshire Combined Authority
WYLES	West Yorkshire Low Emissions Strategy
WY+TF	West Yorkshire Plus Transport Fund

References

- [AQAP09] Calderdale Air Quality Action Plan 2009, Calderdale Council 2009
- [AQEG12] Fine Particulate Matter (PM_{2.5}) in the United Kingdom, Air Quality Expert Group 2012
- [AQPWY] Air Quality Plan for the achievement of EU air quality limit value for nitrogen dioxide (NO₂) in West Yorkshire Urban Area (UK0004)
- [AQPYH] Air Quality Plan for the achievement of EU air quality limit value for nitrogen dioxide (NO₂) in Yorkshire and Humberside (UK0034)
- [Dataworks] Calderdale Data Works at <https://dataworks.calderdale.gov.uk/> - an open data site including air quality data [accessed October 2017]
- [CMBC17] Calderdale Council's Transport Strategy
<https://www.calderdale.gov.uk/v2/residents/transport-and-streets/transport-improvements-and-initiatives/transport-strategy> [last accessed 28th July 2017]
- [CMBC17B] Calderdale Council's Cycling Strategy
<https://www.calderdale.gov.uk/v2/residents/leisure-and-culture/cycling/cycling-strategy> [accessed 12th October 2018]
- [CR12] Carslaw D C and Ropkins K, openair --- an R package for air quality data analysis. Environmental Modelling & Software. Volume 27-28, 52-61, 2012
- [CR16] Carslaw D C and Ropkins K, openair: Open-source tools for the analysis of air pollution data. R package version 2.0.0, 2016
- [DE16] Air Pollution in the UK 2015, DEFRA 2016
- [DE17] UK plan for tackling roadside nitrogen dioxide concentrations Detailed plan, July 2017
- [DfT97] Traffic Advisory Leaflet 3/97 at
https://lagm.defra.gov.uk/documents/TAL_3-971.pdf Department of Transport 1997
- [LCPH] Lancet Commission on Pollution and Health 2017 at
[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(17\)32345-0.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(17)32345-0.pdf) [accessed October 2017]
- [LG2018] email from Laura Greenan to Mary Farrar 18/09/2018 14:58.
- [PG16] Local Air Quality management Policy Guidance LAQM.PG(16), DEFRA 2016
- [R17] R Core Team (2017). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.

URL <https://www.R-project.org/>

[RB2018] email from Richard Binks to Mary Farrar 19/09/2018 11:51.

[TG16] Local Air Quality management Technical Guidance LAQM.TG(16),
DEFRA 2016

[WYLES] West Yorkshire Low Emissions Strategy
<https://www.calderdale.gov.uk/v2/businesses/pollution/air-quality/wyles-low-emissions-strategy> [accessed October 2017]